AMERICAN VETERINARY REVIEW.

DECEMBER, 1907.

THE KANSAS CITY VETERINARY COLLEGE
Incorporated July 29th 190

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, October 15, 1907.

CUTI AND OPHTHALMO-MALLEINATION.—The very concise remarks that I made last month in reference to the experiments made by Mr. Martel with cuti and ophthalmo-malleination have merely made known the conclusions to which this experimentor had arrived in trying the new method. But there are points in the observations made by Martel which cannot be overlooked and which one may derive himself by referring to the details of the report which was presented at the Societé Centrale at the beginning of last July. I may be allowed to resume some parts of it.

It seems that fourteen years ago Mr. Martel had contracted glanders, while working at Pasteur Institute. The infection had begun by pneumonia of the left lung and he had phlebitis of the internal saphena, accompanied by a large abscess of the calf of the leg. A glanderous lymphangitis with ulceration, undermining suppuration, fistulæ and adenetis of the lymphatic glands of the groin, were the manifestations that lasted nearly eleven months. The pus from the abscess was examined at the laboratory of Nocard and that of the Inspectors of Meat. The bacillus of glanders was found in both cases. There was no doubt about the nature of the trouble.

In carrying out his last experiments on the cuti-malleination and to see its value in the diagnosis of the disease in man as well as in animals, Martel thought that he would try it on himself, and on his left forearm he made slight scarifications, which

were coated over with mallein diluted in carbolic acid. He also scarified his right arm, but left these as control without mallein applications. He also applied the same test on ten other persons that never had had glanders, in six with dilution to 1-10 and in four with dilution to the quarter. The dilutions were made in sterilized water.

The experiments on these ten persons were negative—a superficial redness, which subsided in a few days, and nothing else was observed.

* * *

On the person of the experimentor it was different. On his left arm the cuti-malleination had given quite a reaction after

FIG. 1.

twenty-four hours. On the second day there was swelling and slight hypersensibility with great itching. Between the second and the third day the reaction had reached its highest point, there was a slight oozing of citrine serosity. From the third to the fourth day the swelling and redness subsided. Desquamation began on the fifth day. The skin remained highly colored

for several weeks after. The scarifications of the right arm presented nothing peculiar. The result was negative.

In another similar operation Mr. Martel experimented upon himself again and the results were like the first, a marked cuti-reaction.

This case is illustrated with the three accompanying views.

Fig. 1 shows the cicatrices of farcino-glanderous infection on the legs of Mr. Martel, after twelve years recovery.

Fig. 2. This shows the effects of cuti-malleination with carbolized mallein to 1-10, taken on the tenth day.

FIG. 2.

Fig. 3. View of the second malleination with pure mallein. Photography taken at the forty-third hour.

* * *

Besides the experiments made upon himself, others were also carried out on other human beings. On a man who had been working in a rendering establishment, and had contracted glanders, diagnosed with bacteriologic examination, only a slight cutaneous reaction was obtained. Another man, suspected only, but with no bacteriologic diagnosis, gave no reaction. A third, who had recovered from a lymphangitis of glanders, contracted in 1884, or twenty-three years before, a strongly marked cuti-reaction was obtained.

Fig. 4 shows cuti-reaction with brute mallein in this last case. The photography was taken at the forty-second hour. The two scarifications of the middle were coated with mallein.

Fig. 5 shows the same cuti-reaction on the seventh day. Most of the scabs formed are still adherent. Some are falling off. the œdema and redness are gone. The two other scarifications are nearly all gone.

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In the same number of *Hygiene De La Viande Et Du Lait,* from which the above are extracted, Mr. Martel has reviewed a large number of experiments which he has made on horses with

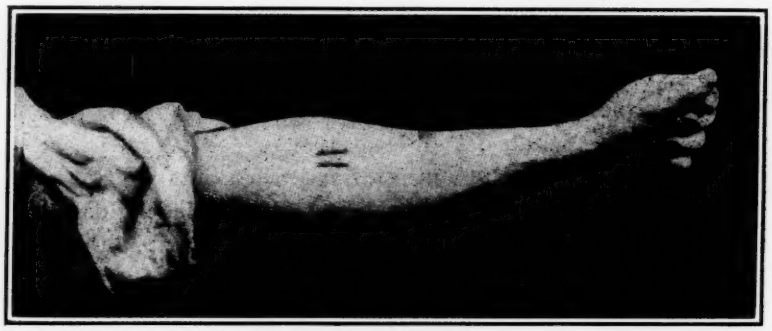

Fig. 3.

the cuti and ophthalmo-reactions, employed alone or associated with the sub-cutaneous malleination, and has thus resumed his observations:

In man, *cuti-reaction is well marked in individuals affected with severe and recovered glanders,* even after a very long time (12, 13, 23 years).

In horses, *cuti and ophthalmo-malleination,* although not so easily applied as ordinary malleination, *deserve to be resorted to with this last.*

All horses seriously affected with glanders (with or without symptoms) *give marked reaction to the various methods of malleination.*

Horses that have recovered from glanders, but have been reinfected, give most generally marked reaction to cuti-malleination; all react with ophthalmo-malleination.

Ophthalmo-reaction is more frequent than cuti-reaction *in horses slightly affected, those that have recovered or are on the way to recovery.*

And finally, as conclusions, he says:

" Ought to be considered as affected with glanders all horses that present painful and lasting œdema with lymphangitis extending from the sub-cutaneous swelling of the neck and running towards the lymphatic glands of the entrance to the chest,

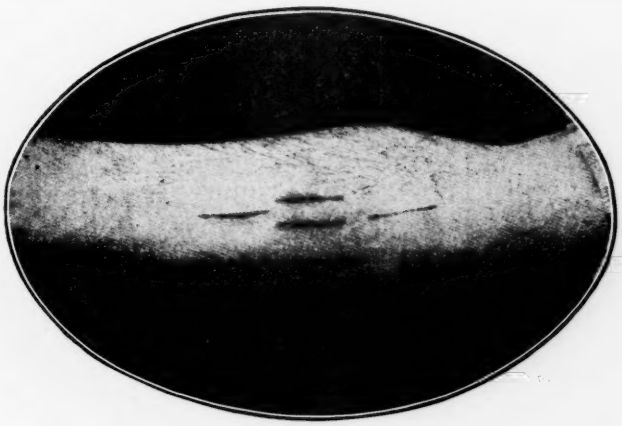

FIG. 4.

whether there is an elevation of temperature or not (ordinary malleination), with or without cuti and ophthalmo-reaction; and as recovered all animals which having no thermic reaction nor any œdema at the point of the sub-cutaneous injection of mallein and gives, nevertheless, ophthalmo-reaction with or without cuti-reaction."

* * *

PROTHESIS OCULARIS is an operation which veterinarians seldom resort to, I believe, and yet the indications for its application are quite numerous; whether it is on account of severe traumatism, of injuries of the globe or of neoplasms, enucleation

is often the only means by which an ugly deformity and great suffering to the animal may be relieved.

Nothwithstanding this enucleation, there remains another condition which prothesis alone can remedy—an ugly depression at the orbit and an unsightly retraction of the eyelids.

Prof. Dr. Pietro Ghisleni, of the Veterinary University of Bologna, has recently published in the *Clinica Veterinaria* an article on a comparatively new method, in veterinary surgery at least, where he recommends the use of injections of vaseline in the orbital cavity to avoid the bad results of the removal of the whole globe of the eye.

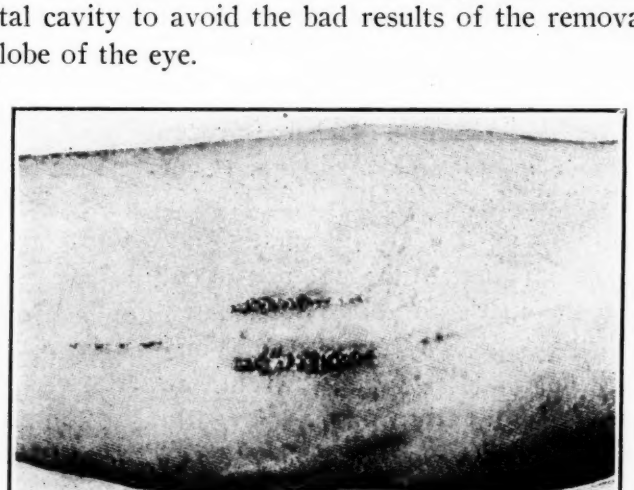

FIG. 5.

First the author passes in concise review the attempts which have been made in that direction. Alluding to the case published by Chapart in 1829, he recalls the processes patronized by Bayer, Schede, Schmid, Bauer, Hertwig, Trasbot, Zundel, Vachetta and many others, and criticises the attempts which have been made in the use of artificial means, such as the filling of the orbital cavity with balls of cement, of bone or ivory, and again the artificial eye made of glass, of gutta percha, of rubber, of horn, which, if they present some advantages, have also many inconveniences.

In 1902 Director Baldoni was the first to resort to the method of Gersuny, consisting in injections of vaseline, and

under his direction Ghisleni undertook a large number of experiments and operated with such success in all the cases that came before him. and with such superior advantages to the use of the artificial eye, that he became very desirious to present it to the profession at large.

* * *

The technic of the operation is very simple and can be resumed as follows: The ocular globe being enucleated, the orbital cavity is dressed antiseptically, daily, for eight or twelve days, care being taken that it be filled with sterilized gauze in such a manner as to keep the eyelids rather raised outward. When the suppuration has entirely stopped the edges of the eyelids are scarified, and when complete hæmostasis has taken place and the orbit is well washed with alchohol, blepharorrhaphy is performed and the eyelids well brought together. Then introducing at either angle, the temporal or the nasal, the needle of a syringe, kept in a water bath at 40 degrees C. and filled with pure white and sterilized vaseline, its contents are pushed into the orbital cavity. To distend and raise the eyelids, the quantity of vaseline required is between 15 and 25 c.c. for a horse of medium size and of 7 to 15 for a dog. Immediately after the injection, it is well to cool off the seat of the operation; pulverization of ether promotes the consolidation of the vaseline. As an additional precaution and to avoid the possible escape of vaseline between the eyelids, Baldoni has suggested that a little piece of the conjunctival coat of the inside of each lid be carefully excised and the two bleeding surfaces brought together with stitches. This additional step has the advantage of allowing the margins of the eyelids to be more free and of saving the glands of Meibonius.

The complete cicatrization of the operation takes place in about ten days. In some cases 2 or 3 c.c. of vaseline have to be injected again by puncture made through the centre of the upper or the lower eyelid. Some times paraffine is added to the vaseline so as to make the material harder, but Ghisleni prefers not.

With this prothesis ocularis none of the inconveniences of the use of the artificial eye exists. It is a simple method at the disposal of every one; it can be applied to any animal, and by the retraction and depression of the eyelids are avoided, and consequently much of the ugly deformity resulting from the enucleation of the eyeball.

In conclusion, Prof. Ghisleni records as illustrations and with figures, (1) a case of primitive sarcoma following traumatism in a mare, which was operated by this method, and in which the result left nothing to desire; (2) that of a dog, which had an enormous protrusion of the right eye with staphyloma of the cornea and parenchymatous keratitis. After recovery the appearance of the dog was most satisfactory, without the slighest deformity; (3) that of a dog which, after a fight with another dog, had a complete prolapsus of the left globe with laceration of the cornea. Treated with the injection of 7 c.c. of vaseline in the orbital cavity and of 1 c.c. in each lid afterward, the result was also excellent and proved most satisfactory.

It is certain that the method patronized by our *confrêre* in Italy is deserving of trial by those who may meet cases of injuries of the eye that may require the complete removal of the organ.

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CANCERS IN ANIMALS.—Professor Cadiot is a prolific writer, and, notwithstanding the numerous occupations that his many scientific positions impose on his everlasting energy, he finds now and then time to give the profession some excellent articles, or reviews, on surgical subjects which are of great interest to those who read them. One of the last published is on cancers in animals.

All animals may present tumors. If statistics seem to show a greater proportion of cancers among carnivora, it is because herbivora are more frequently killed when they are young, and, again, because it is more in adults or old individuals that cancerous growths develop.

Tumors are classified into benignant and malignant. These are characterized by their tendency to more rapid development, to become generalized and to recur. In clinics they are called cancers. Animals which are suffering with them do not seem to be under the influence of a special cachexia. According to their origin, epithelial or conjunctival, they are divided into epitheliomas and sarcomas.

The former may proceed in any of the epithelias of the organism. They are more or less typical, resembling the original tissue, and are more or less rich in connective tissue, as the scirrhous or the encephaloids. The latter, which develops in the connective tissue, are often atypical, such are lymphosarcomas. They are then ordinarily a tuberculosis lesion, as in the dog, and not a tumor. Sarcomas may develop in any part of the organism, the connective tissue existing everywhere. They have commonly a rapid proliferation and become easily generalized.

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The etiology and pathogeny of cancer are still imperfectly known. Heredity scarcely has anything to do in the predisposition of one to become cancerous. The zoological species has no influence. Age is a factor in the etiology; aged individuals are more susceptible than young. Alimentation has no influence. Chronic irritations have, which is undeniable. Anomalies in the location of organs (ectopias) or of tissues (cellular heteropias) may be the causes of tumors (dermoid, teratomas), but very probably do not promote the growth of malignant tumors. Contagiosity of cancers seems possible, in a more or less immediate way; there are no cases of it in domestic animals, nor in man, but the infection and special contagion of the cancer of mice is undeniable. Experimentally, the attempts of transmission of cancer from animals to subjects of the same or of different species are not to be counted. Positive results do not exist except for the cancer transmissible from mouse to mouse. Sticker has demonstrated the inoculability of some sarcomatous tumors of

the penis of the dog, by coit, subcutaneous or intraperitoneal inoculations. But the nature of these tumors is doubtful, especially after the researches made by Borrel.

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The pathogeneous theories of cancer can be classified into the following groups: *Diathesic theory,* in which by special diacrasia the organism in the presence of common irritations may give rise to cancerous reaction. *Theory of Heterotopy,* which explains the genesis of tumors by the development of cells normally closed during embryonary life. It explains only a very limited number of cases. *Cells Theory,* where it is supposed that one or several cells acquire excessive and disordinate proliferating properties after an abnormal fecundation of two elements. *Parasitar Theory,* which assimilates carcinosis to infectious diseases due to an exogenous micro-organism. There exists great resemblance between infection and cancer, but the theory is in fault when it must explain why the secondary localizations of a generalized tumor resembles all to the initial growth, whatever may be their seat. It must be said that one may suppose the casual agent as giving rise in the cell to peculiar proliferating properties, which render it infecting for the organism; consequently, two steps in the pathogeny of cancer, transformation of the biology of certain cells by the exogenous agent and then parasitism exercised by the generations issued from these cells. The incriminated initial agent is unknown. Microbes (*Micrococcus neoformans of* Doyen), various sporozoar, ferments—have been accused without predominating evidences.

Actually many accept the parasitic theory. Whatever the parasite may be, special or peculiar circumstances promote its action (senility, syphilis and use of tobacco for man) ; soil and germ are not independent factors.

The prognosis of cancer is always serious and the treatment specially surgical.

ELECTRIC SLEEP.—In one of our medical contemporaries, the *Presse Medicale,* one of the professors of the School of Medicine of Nantes, Mr. Stephane Leduc, has published an article which justifies the title of a review made by Prof. G. Petit of Alfort. This title is "Anesthesia in Animals with Electric Sleep."

Under the name of electric sleep, Prof. Leduc has designated a condition, analogous to that produced by chloroform, "Chloroformic sleep," and which is the result of the action of a certain electric current upon the brain. This current, which is "intermittent, with low tension and constant direction," is obtained by a special apparatus.

According to Prof. Leduc, and contrary to what was believed previously, the brain is of all deep organs, the most accessible to electric currents. For instance, to put a dog to sleep, the top of the head is shaved close, it is covered with hydrophile wadding moistened with a 1/100 solution of chloride of sodium. An electrode attached to a conductor is fixed on the wadding. The second electrode is secured in the same manner, either on the posterior part of the back or the inferior of the thorax, according to the effect that one wishes to obtain. The first electrode is connected with the negative and the second with the positive pole.

Under the influence of the electric current, sent with some peculiar precautions, one observed first, as in any general anæsthesia, a period of excitation, which is followed by cerebral inhibition, analogous to chloroformic sleep, with the exception of the preservation of reflexes, specially if the spinal cord is not on the tract of the current, the animal does not react to any excitation, he seems to be in a state of absolute general anæsthesia. *All kinds of operations can be performed on the patient, and it will not react any more than an animal in a deep chloroformic sleep.*

* * *

When one knows the voltage which is necessary, if it is introduced instantaneously in the current, the inhibition is sudden.

The animal drops stiff, but after a few seconds the respiration returns. As soon as the current ceases, the animal wakes up in an instant. "Most often," says Leduc, "the animal gets up immediately, looks quietly round him, manifests no pain, no fright, no fatigue and once the electrodes are removed, he jumps and moves freely and eats whatever is offered to him. There never is any consecutive effects, such as vomiting. Evidently there has been no pain endured or felt, as the animal has not shown any evidence of it, he has no fear and is as friendly after as before. He does not rebel against other preparations for another operation. In other words, it seems perfectly indifferent to what has been done."

The electric sleep is then a question of voltage, which, if too strong, would produce electrocution. This is the danger. But if it occurs, Leduc gives a method to bring back to life those animals in a state of apparent death—in using the same current which has killed them. This method consists in leaving the current pass at short intervals, then stop it, taking as a guide the respiratory rhythm of the function of the muscular contraction thus produced, to realize artificial respiration.

Electric sleep can be kept up for several hours without any inconvenience.

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As complements to the statements made by Prof. Leduc, two other experimentors, MM. Tuffier and Jardy, have tested the value of the method to make it take the place of general anæsthesia, which is so often dangerous to animals, and they have demonstrated that electric sleep given to dogs produced a long and lasting absolute anæsthesia, without any danger and with perfect security.

They have experimented on seven animals, that have been submitted to several seatings of anæsthesia, one among them has had several operations performed upon him—all, in fact, having been submitted to operation, such as those that are generally followed by nervous shock, and yet ALL have had an instan-

taneous wakening, got up from the operating table, walked and even ran after the operation. The operation to which these dogs were submitted were gastro-enterotomy, pylorectomy, pancreatectomy, cholecyto-enterotomy.

The conclusions are that electricity is an anæsthetic of first order and free from any danger. They add: "If the intensity of the current is too strong, generalized contractions appear and respiration stops, but the heart remains normal; reduce the strength of the current and immediately the normal respiratory rhythm will return."

The important question now is: Can this original and curious mode of anæsthesia enter into daily veterinary practice?

Experience alone will answer.

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I have not been favored with many publications from the other side of the big pond this month, but still feel thankful to those who have sent me copies of their work. Among them I may mention first, from the Department of Agriculture, Bureau of Animal Industry, three numbers of the index catalogue of Medical and Veterinary Zoölogy, by C. W. Stiles and A. Hassall, and then Circular 114, on "Sanitary Milk Production." From the Chief of the State Board of Agriculture of Massachusetts, Dr. A. Peters, the tenth semi-annual report; the July number of the *Transvaal Agricultural Journal,* where Dr. Arnold Theiler and C. E. Grady continue their excellent article on diseases of stock not referred to in the Contagious Diseases of Animals Act. The report of the Chief Veterinarian, Dr. J. G. Rutherford, M. V., report addressed to the Secretary of Agriculture of Canada. The peculiar fact that the same is printed in French has rendered the reading more pleasant to me, besides the numerous interesting facts that it contains. From the newly-elected President of the A. V. M. A., Dr. Dalrymple, the last conclusion of his experiments on bare-lot *vs.* grass-lot, in relation to stomachal and intestinal parasitism of lambs, which no doubt many

have read already and which have proved of sufficient interest to be reprinted in European publications. And, finally, among the announcements of several colleges for the session of 1807-1808, I also find the *Journal of the Alumni Association of McKillip* and the fourth number of the *Bulletin of the Chicago Veterinary College.* A. L.

PHILADELPHIA IN 1908.

The Executive Committee of the A. V. M. A. has decided in favor of Philadelphia as the convention city of 1908. While the REVIEW believes and advocates that the meetings of the A. V. M. A. should be held in the Central West, so as to be equally accessible from all parts of the continent, yet there seems to be several good reasons why the 1908 convention should be held in the City of Brotherly Love.

Among these reasons may be mentioned the influence of a well-organized and powerful state association; the recent magnificent achievements of the profession of that commonwealth; the appropriation of large sums of money for veterinary education and for the carrying out of veterinary sanitary laws in Pennsylvania; the passage of the first efficient and satisfactory state meat inspection law in the land; the completion of the new buildings of the veterinary department of the University of Pennsylvania, equipped with every facility and apparatus for the teaching of veterinary medicine along modern scientific lines, and last, but not least, is the earnestness and the cordiality of the invitation extended to us by the progressive and loyal sons of Pennsylvania. W. H. L.

RECENT DATA IN VETERINARY SURGERY.

In this issue of the REVIEW our distinguished colleague, Prof. L. A. Merillat, of the Chicago Veterinary College, commences a review of the more recent thoughts, theories and discoveries in veterinary surgery.

It is his intention to review the whole field of medical research wherein it concerns veterinary medicine, especially surgery, and conclude some months hence with a discussion of all our standard surgical manipulations, with especial reference to their real value, new methods of performance, new instruments and new surgical drugs.

Such an epitome of recent veterinary knowledge cannot help being of much practical value and usefulness to the busy practitioner, who has not the time to wade through long heavy papers to assimilate their contents. W. H. L.

STATE MEAT INSPECTION SERVICE.

The first state in the union to enact anything like an efficient and satisfactory meat inspection law is Pennsylvania. This law is the result of the work of a powerful state organization, under able and wise leadership.

Circular No. 7 of the State Live Stock Sanitary Board of Pennsylvania, just issued, contains the rules and regulations which have been formulated and are now promulgated for the government of the meat hygiene service in that commonwealth, as authorized by act of the Assembly, approved May 25, 1907.

Ten agents of the Board have been appointed in the meat hygiene service, each at an annual salary of $1,800 and traveling expenses. State Veterinarian Leonard Pearson may well be congratulated on his accomplishments, for the agents are all qualified and capable veterinarians of good standing in the profession.

The necessity for an adequate and efficient state and municipal meat inspection service is now being emphasized in the enforcement of the Federal regulations governing meat inspection.

Small packers have found it more profitable to forfeit their interstate trade rather than maintain a proper standard of sanitation, discontinue the use of prohibited preservatives and stand the loss incident to the condemnation of diseased animals and unwholesome animal food products. W. H. L.

EXPERIMENTS AT THE ROCKEFELLER INSTITUTE.

It is announced by the Associated Press that the results with dysenteric antitoxin at the Rockefeller Institute for Medical Research, in immunizing animals have been so successful as to lead to the hope that this may prove of value in the cure of dysentery in man.

Reports of this kind emphasize to the veterinary scientist how much more knowledge could be brought to light and demonstrated that would be of inestimable value in the protection of human health and life, as well as in the alleviation of human suffering, if a properly equipped veterinary college, with a faculty of veterinarians especially educated and trained for this kind of research work had at its disposition millions of dollars, as is now available at the Rockefeller Institute.

From the veterinary medical point of view it seems quite as absurd for a doctor of medicine (human medicine) to undertake research work that is primarily and essentially veterinary work as it would be for a verterinarian to undertake to do work of a similar character appertaining to the human system.

Furthermore, it ought not to take any argument to demonstrate that the competent veterinarian, with his special training in comparative medical science and his knowledge of animals and animal life and habits, is better qualified and, therefore, more competent to conduct animal experimentation and demonstration than a medical man, educated from the standpoint of human medicine.

We submit that this matter, from the above point of view, might be presented to the Oil King for his consideration.

W. H. L.

"THE REVIEW continues to get better each year, and I consider each copy worth the price of the year's subscription. I have no doubt but what there is moss growing on the backs of those veterinarians who do not read it."—(*N. I. Stringer, Sec., Ill. V. M. A., Paxton, Ill.*)

ORIGINAL ARTICLES.

SOME PRINCIPLES OF PATHOLOGY SIGNIFICANT IN THE CONTROL OF ANIMAL DISEASES.*

By Veranus A. Moore,

Professor of Pathology and Bacteriology, New York State Veterinary College, Ithaca, N. Y.

In view of the uncertainty of the purpose of the Committee on Diseases, and in obedience to the method of procedure which it proposed, I found myself casting about for a topic of general interest to the profession and possessed of sufficient importance in itself to be considered on this occasion. While engaged in this search the story of the drifting seamen came sounding in my ears. Legend has it that a few sailors, as a result of a storm, were left drifting on a raft. After days of watching they sighted a vessel and signaled for help. The reply came in the form of a question, "What do you want?" "Water," was the response of the thirsting sailors, to which the answer came, "Dip down where you are." At this one of the suffering men took up a handful of water and found, much to his surprise, that it was fresh. They had drifted into the mouth of a great river and were dying of thirst on the surface of a sea of sweet water. This reminder of the immediate resources of the practitioner in the rapidly increasing technical knowledge of diseases suggested that a part of the report of this Committee might deal with the application of a few principles of pathology to the handling of those diseases and morbid processes which we are all striving to master. I have sometimes felt that in the battle with disease the members of the medical professions, both comparative and

*A part of the Report of the Committee on Diseases of the A. V. M. A. presented at the Kansas City Meeting, September, 1907.

human, are much in the position of the sailors in the legend, in that they do not appropriate either to themselves or for the benefit of others the relief-giving aids which science has strewn round about them. My choice of this topic is in response to an irresistible desire, prompted by observation and experience, to attempt at least to bring into focus a few principles fundamental in the general warfare against disease.

The first of the principles to which I desire to call attention is that of preventive medicine. The logical conclusion drawn from the true conception of the nature of the infectious diseases is prevention. Pasteur believed that it was within the power of man to eliminate the infectious diseases from the face of the earth. To this end national, state and city governments have made special provision by legislation and appropriation, and they have profited by many successes. A student of sanitary police, however, will soon recognize that such diseases as glanders, tuberculosis and rabies, as well as many of the lesser maladies, are being allowed to spread, often extensively, because of the neglect of adequate methods for combating them. The veterinarian stands in his relation to the stock owner as does the sanitarian to the health of the community, and in this capacity he is, and justly so, held responsible by the owners for the prevention of animal plagues. The methods of prevention are varied, but of whatever kind, they are supposed to be inaugurated or at least applied by the veterinarian. I am aware that some practitioners feel that sanitary work should be looked after by others; but this indifference to become co-workers in the fight against preventable diseases by mastering the fundamental methods by which success is obtained, is causing certain of our State agricultural colleges, such as that of Wisconsin, to give special instruction in preventive medicine to their students. Knowledge is by right common property, and as live stock owners are becoming better instructed in the possibilities of prevention they are looking more and more to their veterinary advisors for counsel relative to the detection, prevention and elimination of threatening diseases.

In the United States there is over $3,000,000,000 worth of animals, over which this profession is in charge relative to the prevention of their communicable diseases. To assist in this work our national and state governments expend, including the Federal meat inspection, more than $4,000,000 annually. Notwithstanding this enormous expenditure, tens of millions of dollars' worth of animals are dying annually from preventable diseases. It would seem, therefore, that one of the duties, if not the first duty, of every veterinarian is to become proficient in the science of preventing diseases, especially those for which there is as yet no means of healing. Surely the success of the profession depends upon the value of the assistance its members render both to their clients and to the state in the prevention of disease.

A fundamental principle in the control of diseases is the application of methods of precision in diagnosis. In treatment, as well as in prevention, the first and most important task is making the diagnosis. Formerly this was done from the history, together with certain signs and symptoms. With the introduction of the new pathology there came certain methods by the use of which one is enabled to look deeper into the structure of morbid tissues than it is possible for the unaided eye to penetrate. Methods of precision must of necessity require the use of instruments and apparatus by which determination can be made more accurately than it is possible for men to attain without such aids. Such methods have largely been brought out in laboratory investigations and for their application it is quite generally believed that a well-appointed laboratory is necessary. In certain instances this may be true, but for the great majority of work for which they are desirable it is not so. In most cases the apparatus is simple and the method requires only the knowledge and skill that application will bring. Methods of precision are not separate and distinct from practical professional work, but valuable adjuncts thereto. A wrong diagnosis, for instance, which might lead to a very erroneous treatment, of the character of a urinary sediment or of a purulent looking substance, is exceedingly easy to make when one trusts to the unaided eye, but

it should be impossible when microscopic aid is employed. The close resemblance in the clinical appearance between abnormal growths composed of formative inflammatory tissue and certain malignant tumors often necessitates, to make the differentiation, a knowledge of minute pathological structures and of historical technique. The examination of the blood, which reveals most valuable information relative to the internal soundness of the animal—the presence or absence of anemia, the presence of suppurating lesions and of certain parasites—gives aid of the highest practical value to the clinician. This knowledge not only enlightens one on the true condition that exists, but it clarifies the treatment. For instance, iron is recognized as a remedy for anemia. It is of great value when the hemoglobin is low and the red corpuscles are normal or nearly so in number, but it is of little or no value when the red corpuscles themselves are greatly reduced. To be accurately informed in these cases requires but a little time, a reasonable training and the addition of a small equipment.

An inquiry into the loss of live stock values from disease shows great depreciation from impairment and death of animals due to the so-called general diseases and dietary disorders. These are the ailments encountered by every practitioner, and it is to reduce the losses from these causes that there is need for the application of definite scientific methods for diagnosis. A general disease or localized morbid process cannot be rationally treated unless its nature is known. It is to put the practitioner in possession of as much of this important knowledge as possible that this plea for the more general use of methods of precision is made.

Unfortunately, there is a feeling which occasionally finds expression that the finer determinations made by instruments and methods of precision are detracting from the skill of the clinician. Such views exemplify a misunderstanding of both the mission of the veterinary profession and the purpose of accurate methods for diagnosis. Such methods are not to detract from skill in detecting diagnostic signs and symptoms, but to make one more certain of his observations. They are to verify or disprove the

conclusions drawn from the physical examination. There are undoubtedly many changes taking place in making diagnoses as a result of these newer methods and they are upbuilding and dignifying the profession. We do not wish to exchange our Pullman car for the old stage-coach, nor the reaper for the sickle. We do not wish to abandon the clinical thermometer or reject the results of urine examinations to accept the guesses prevalent before their time. No one would care to trust to a diagnosis of tuberculosis in a recently infected animal without the tuberculin test or of glanders without mallein. Accuracy in the diagnosis of many morbid processes cannot be assured without the means of determination more positive than their symptomology alone suggests. Not long since I had occasion to search through the case reports in order to determine the frequency and geographical distribution of certain pathological formations. After reviewing hundreds of cases I was discouraged to find how few of them could be accepted as genuine, because of the lack of adequate means in making the determination. We are inclined to forget the weakness of opinions unless they are based on facts, and the facts determined by accurate, recognized methods. Certainly all possible assistance afforded by methods of precision could not tend to lessen the natural or acquired ability of the clinician; but, on the contrary, experience has shown that with the use of finer methods the powers of observation in clinical work have become more keen and critical than they were before. If one acquires definite information regarding one symptom he will strive more earnestly to make his knowledge of the other manifestations as definite and exact as possible. The purpose of finer methods is to increase the powers of observation. If all the present knowledge and methods were made use of, the elements of error and of accident would cause mistakes enough to occur.

As the infectious diseases are responsible for heavy losses among animals, the principle of infection is of great importance. This means simply the invasion and indwelling of the animal body by microscopic, living organisms. An inquiry into the

present knowledge of the infectious diseases shows that in their production and dissemination they are obedient to definite laws, which appear to be within the limits of human understanding. In brief, the distinguishing characters of these maladies are specific infection; a period of incubation; the nature and duration of the morbid changes; and the dissemination of the virus. These all vary, but within certain limits, according to definite laws. These laws are found in the operation of the natural forces for the spreading and means of contracting the virus; in the degree of resistance or of susceptibility of the host; and the virulence of the invading organism. They involve a knowledge of the life conditions for each of the pathogenic microbes. If one subjects the various outbreaks among domesticated animals to careful analyses according to the principles of infection they will fall naturally into two groups, one in which the casual factor is infection, the other those which are the result of dietary or other causes of a temporary and local character. The presence of an epizoötic disease is a serious matter. It is of the highest importance, therefore, that when a disease apparently of a specific nature appears, that a true diagnosis be made in order that the best methods for preventing its further spread may be employed.

To make an adequate diagnosis is not always easy, but to differentiate between a specific infectious disease and some other cause, which might destroy a large number of animals, ought to be difficult. Many unsuspected agencies, capable of causing death, may creep in with the introduction of new methods of management. Some years ago, in the State of New York, there were reported a large number of outbreaks of hog cholera and thousands of swine were lost. An investigation showed that the cause of death was not a specific disease, but a poisoning due to powdered soap that was allowed to go into the swill. This illustrates one of the many effects upon animal life that may be expected from the constantly changing customs and economy of the people. Not long since I was requested to investigate a serious outbreak of a so-called infectious disease among the swine on the farm of one of our soldiers' homes. Several hun-

dred pigs had died and the diagnosis of hog cholera had repeatedly been made. An examination showed the pigs then sick to be exhibiting a great variety of symptoms, and those dead to lack the morbid changes of a known specific disease. In the swill barrel was found a number of bottles and paper boxes containing Fowler's solution, aconite, strychnine tablets, antikamnia and the like. The pigs were being fed the refuse from the hospital together with the garbage from the kitchen; and because of many deaths the disorder was pronounced hog cholera. Had the principle of infection been heeded such an error in diagnosis could not have been made. Anthrax, black leg, actinomycosis, glanders and rabies, each possessing a positive and definite means of diagnosis, are frequently mistaken, largely because definite methods are not employed.

The devious channels of infection and the multitudinous ways of its manifestation through metastasis and otherwise bring to our notice great numbers of common, but perplexing morbid processes, due to infections of various kinds and as sequellae of acute specific diseases. The work of Nocard relative to white scours in calves, of Mohler relating to the large number of lesions produced by *B. necrophorans,* and the great variety of lesions known as Botryomycosis, illustrate the importance of this phase of infection. The failure to thoroughly apply the simple precaution of proper disinfection costs this country thousands of animals annually. I was deeply impressed by the statement of a teacher of agriculture on the great extravagance of the veterinarians in permitting so many losses from common infections.

Of the laws of infection to overcome there are none more trying than those pertaining to the dissemination of pathogenic micro-organisms. The subtile powers of certain bacteria to cling to their hosts after symptoms have disappeared; the uncertainty of the period of incubation; the incipient and chronic cases; are all potent factors, often neglected, in the spread of disease. To persuade those interested in the exchange of animals that many of their losses are due to the neglect of those elements in the laws of microbian dissemination is one of the highest and like-

wise most difficult duties of the practitioner. The detection of cases in the early stages, at least before symptoms appear, is possible with certain maladies, such as tuberculosis and glanders, but with the others we must as yet depend on general principles and not specific methods.

The laws now in force in certain states demanding the application of tuberculin to all cattle admitted and the rejection of all reactors, will soon become general, and it may be followed by laws requiring this specific test of animals exchanged within the State. Such a bill came very near passing the Wisconsin legislature this last session. What is now true for tuberculosis may become the practice with glanders and possibly other communicable diseases. To meet with the highest success along these lines the veterinarian must co-operate with the live stock owner. This appears to be very important, for at the present time the agricultural colleges are making equal if not more rapid progress than the veterinary colleges in educating their students and followers in the principles of infection and methods for preventing the spread of epizoötic diseases.

Attached to the great veterinary clinics of Europe one finds a chemical, bacteriological and pathological laboratory, primarily for the purpose of diagnosis, but secondarily for teaching the coming veterinarians the absolute necessity for good results of a working knowledge of the principles of infection and methods of accurate determination. It seems that a most important work for this great association is to unite in bringing into everyday practice the application of methods already known for accurate diagnosis and prevention as well as for treatment.

Since Bouchard published his lectures, there has been no more difficult pathological problem before the veterinary profession than determining the significance of autointoxication. The prominence it has gained in human pathology suggests the great importance of large quantites of unabsorbed and waste food present in the digestive tract. The recent work of Gilbert showing the dependence of many disorders on the direct or indirect action of the products absorbed from the intestine is of much

significance. Equally suggestive are the conclusions of Edgren that autointoxication is responsible for a large percentage of cases of arteriosclerosis. The work of Dawson on astheniae or "going light" in chickens is a good commentary on the effect on metabolism of the absorption of a specific microbian product. From the results ascribed to autointoxication in the production of delirium, coma and cerebral paralysis it is possible that many obscure cases of apparent cerebral or spinal trouble, especially in horses, may be traced to this cause. Cholema and eclampsia are further illustrations of the effect of the retention of products that normally are eliminated by the liver and the kidneys. In the control of disease, the organs of elimination are undoubtedly deserving of more careful attention.

The principles of immunity and vaccination are presenting many problems for the sanitarian and practitioner alike. The dread of infection and the success of certain antitoxins, such as that of diphtheria in man, and of tetanus as a prophylactic in horses, afford premises for arguments apparently logical, but in fact mere sophistry for venders of all sorts and kinds of serums, antitoxins and vaccines. There is nowhere in the realm of professional knowledge a subject which requires a keener discrimination between that which is known, that which is still experimental and that which from known laws cannot be true, than in the use of measures for producing artificial immunity. Here, again, one must depend upon principles and not upon isolated cases or coincidences.

Finally, the control of diseases among domesticated animals seems to rest largely in the hands of the individual veterinarian. He is the guardian over the flocks within his own jurisdiction. He is first to make the diagnosis and to him falls the high privilege of initiating the treatment, whether thereapeutic or preventive in character. To live up to the full measure of this responsibility requires a close adherence to the principles which govern the cause, diagnosis, prevention or treatment of disease and absolue integrity in carrying out the details. To apply the principles the methods must be known. When we come to fully

appreciate the application to our individual work of the truth of the axiom that "a chain is no stronger than its weakest link," we shall have a standard by which to measure, each his own strength, in lifting the burden of disease from dumb creation and in helping to place the practice of veterinary medicine among the great and beneficent professions.

THE medical profession now has a fine opportunity to remove from the body politic in New Jersey the canker that is eating into its very existence, for, at the recent election in that state, in no less than seven cities physicians were elected mayors of their respective municipalities. We shall watch with interest municipal government administered by physicians.

AN ASTONISHING COW.—One of the most remarkable exhibits at the Show is a cow with a permanent opening in her stomach, made for the purpose of demonstrating to students of veterinary science the act of rumination. Three months ago this cow, an old animal, was about to be destroyed, but Veterinary Surgeon Desmond secured her for the purpose mentioned. He states that the operation was a perfectly painless one, and that it has had no ill effect on the cow is demonstrated by the fact that since the operation she has gained 300 in weight. On Friday morning students from the Agricultural College were lectured to on the subject by Mr. Desmond, and one of them, baring his arm, inserted it up to the shoulder into the cow's internal economy, and caught the particles of food as they came down the gullet on their entrance into the stomach. The opening, it should be said, is in the near side flank of the cow. The student also explored the second stomach, and examined its contents, the animal munching contentedly the while. Mr. Desmond states that this is the first time such an operation has been performed in the Commonwealth. The animal, in her present condition, is of immense value for demonstrating, visually, the digestive system of cows. Recently this particular cow objected to take molasses, so she is fed with it through the orifice in her flank. In fact, Mr. Desmond says that she might be entirely sustained in that manner if necessary. Throughout the day this curious, if somewhat uncanny sight, attracted crowds of people.—(*From the Adelaide Chronicle, South Australia.*)

THE RELATION OF ANTITOXINS AND VACCINES TO INFECTIOUS DISEASES.

By S. H. Gilliland, V. M. D., M. D., and E. L. Cornman, V. M. D.,
Marietta, Pennsylvania.

Presented to the Semi-Annual Meeting of the Pennsylvania State Veterinary Medical Association, at Harrisburg, Sept. 3, 1907.

The past twenty-five years has brought forth a wonderful advancement in the prevention and treatment of infectious diseases of animals by antitoxins and vaccines. It is not the intention of the writers of this paper to present to you a technical hypothesis of the relation of these products to the diseases, but to give to the practitioners of veterinary medicine a comprehensive statement of the production of the products and the method by which the results have been attained.

There are two kinds of artificial immunization, active and passive. In active immunization the tissues of the subject are induced to form antitoxins or antibacterial substances as a result of vaccination or protective inoculations. In passive immunization we inject the antitoxic or antibacterial serums, which are capable of neutralizing or lessening the action of the poisonous products of the disease. The substances used in the production of active immunization are known generally as Vaccines. These vaccines may be composed of—

1. Non-fatal inoculations of the virulent organisms.
2. The inoculation of small doses of the virulent organism into a tissue that has some natural resistance.
3. The injection of killed bacteria of the disease.
4. The injection of bacterial constituents. To this we must credit whatever immunizing or curative value mallein or tuberculin may have.
5. The injection of attenuated organisms, viruses or toxins which has given the larger number of successes.

The substances used in the production of passive immunization are known as antibacterial or antitoxic serums. In this case

an intermediate subject (the horse in diphtheria and tetanus) is highly immunized against the disease and its blood contains the antitoxic substance. An immunity can be conferred by passive immunization in a much shorter time than by active immunizations. The best results in passive immunization have been obtained in those diseases in which there is much toxin produced by the specific organism.

Lastly, we may have an immunization against a disease which is produced by a simultaneous injection of an antitoxic serum with the corresponding organism, which may be killed or attenuated in virulence, and known as a vaccine. The serum causes immediate, though temporary, resistance, and in the meantime an active, more permanent immunity develops as a consequence of the injection of the vaccine. This is known as mixed active and passive immunization.

We are most familiar with the terms vaccine and vaccination as applied to protective inoculation against small-pox. They are used, however, with equal propriety in all instances in which the attenuated or killed organisms of the disease are inoculated for the purpose of establishing resistance to an infection. The process set in motion by vaccination is such that the body cells are induced to form specific anti-bodies extending over a long period of time. Hence it is evident that the resistance in this instance is more protracted than that established by passive immunization.

The name of Jenner will always be recognized as the first to give to us a method of preventing disease by vaccination. It was in the latter half of the eighteenth century that he published the observation that dairy-maids who had contracted cow-pox showed a marked degree of immunity from small-pox. If they were not able to prevent the disease entirely, it manifested itself in a very mild form. He inferred from this that cow-pox was capable of giving immunity to small-pox. To this disease the name of vaccinia was given, and a great many people were vaccinated with the virus thus obtained, and the mortality of small-pox was greatly reduced. This theory was believed until recent years,

when it was learned that the virulent virus of small-pox when inoculated into calves was capable of producing vesicles similar to those of small-pox and not unlike those of the so-called cow-pox. It was further observed that when the virus from these vesicles was taken and re-inoculated into people that they developed a similar vesicle at the point of inoculation, which transferred to them a high degree of immunity against the disease. This immunity can be transferred from cow to cow without a marked reduction in its virulence, and is capable of conferring immunity to humankind. Even to this day the specific cause of small-pox has never been determined, yet the virulent virus of the disease can be so attenuated by the passage through the bovine species that it is incapable of producing the disease when reinoculated into man with more than a few local symptoms. The view that vaccinia and small-pox have a common etiology appears to be the only possible one, in spite of the uncertainty as to the exact nature of the cause. To hold a different view would be to acknowledge that immunization with one kind of a microbe may confer immunity of the strongest and most specific character against another, a condition for which we could find no parallel.

It was for the immortal Pasteur to make the next discovery, that the specific cause of chicken cholera could be so attenuated that it could be used as a preventative vaccination for the disease. This was the first work in which the specific organism of the disease was attenuated in order to be used for preventive inoculations. Pasteur observed that these cultures of the bacillus of chicken cholera, if allowed to stand exposed to the light for some time, gradually became less virulent, when inoculated into fowls were incapable of producing the virulent disease, but simply a local inflammatory reaction at the point of inoculation. From this observation Pasteur worked out a system of protective vaccination in which fowls can first be inoculated with very weak, then with stronger and finally with highly virulent cultures, with a resulting protection and immunity. Unfortunately, the method is too complicated for practical use.

A discovery which was of inestimable value in the prevention of the dread disease anthrax was made by Pasteur, and is known as Pasteur Vaccine. The vaccine in this case is simply an attenuation of the virulent cultures of the organism by heat. It is necessary to give two or three vaccinations to confer a sufficient degree of immunity to withstand the infection. The first vaccine, or Vaccine No. 1, is the weakest, and is so attenuated by heat that it is capable of killing a mouse but not a guinea pig. The second vaccine, or Vaccine No. 2, is stronger and is capable of killing a guinea pig of 250 grams weight but not killing a rabbit. The third vaccine, or Vaccine No. 3, is the strongest, and is capable of killing a rabbit, but not killing a larger animal. These vaccines when once attenuated do not increase in virulence when transferred from one culture to another, nor when inoculated into and regained from the animals of the size they are capable of destroying. The method of preparing the vaccine for field use is to inoculate a tube of beef broth with a quantity of the organisms and incubate it at the temperature of the body for thirty-six hours. It is then diluted with three times its original volume of water and 1 c. c. is injected subcutaneously for preventative purposes.

The students of prophylactic measures have found that Vaccines No. 1 and No. 2 confer sufficient immunity to withstand natural infection, except in very severe outbreaks, where it is advisable to give Vaccine No. 3 in addition.

We owe to Pasteur another discovery, which has given us a preventative treatment for the dread disease rabies. Again, like small-pox, the specific organism of this disease is not known, though within recent years Negri has found in the cells of the hippocampus major (Ammon's horn) bodies of a suggestive nature. The immunity is produced by subcutaneous injections of the virus of the disease in an attenuated form, beginning with the mildest virus and going gradually up to one which possesses full virulence. This is active immunization and the attenuated virus may rightly be called a vaccine. In preparing this vaccine it is important to start with a virus of the highest virulence. As the

disease manifests itself in dogs infected naturally, it was called by Pasteur " Street Rabies," and the virus from such animals is known as the virus of " Street Rabies." It has been found by inoculating rabbits in series one from the other, we obtain a reduction in the period of incubation, until after a hundred passages the rabbits will die on the sixth or seventh day after inoculation with great certainty. Beyond this point no increase of virulence can be obtained and to this virus the name of " Fixed " was given. The spinal cord of a rabbit that has died after inoculation with the " Fixed " virus is removed, with precautions against contamination, and divided into three parts. These parts are suspended by a silk cord in a glass jar, which contains a small quantity of caustic potash at the bottom, and has two openings, one at the top and the other in its upper fourth, which are plugged with sterile cotton to allow the free circulation of air. The jar is then placed in a dark room at an even temperature of 23 degrees C. Under these conditions the infected cords lose their virulence entirely in fifteen days. Those kept for fourteen days have a slight degree of virulence and furnish the weakest virus, which is used for the first vaccination. The second vaccination consists of a cord that has dried thirteen days. The third vaccination with one that has dried twelve days, and so on until one can be used which has unimpaired virulence. We may say, however, the treament varies slightly, according to the extent of the bites and their location. The simplest form of treatment requires fifteen days, the next eighteen, and the third, or what is known as the " intensive treatment," where the lacerations have been on the face or hands, requires twenty-one days. All we need to say in regard to the results of this treatment is that the average mortality of people bitten by rabid dogs is in the neighborhood of 16 per cent., while those that have taken the treatment at either the Pasteur Institute in France or at the twenty-five other laboratories in the world, it has been reduced to .77 of 1 per cent. This treatment is as applicable to animals as to man.

The disease known as Rauschbrand, Quarter Evil or Black Leg, is capable of being prevented by a vaccine. The specific

cause of this disease is known and is a large bacillus, and the virulence of the same is capable of ready attenuation by heat. The inoculation of animals with an attenuated culture causes a very mild infection, followed by a high degree of immunity. Kitt has shown that the dried muscles from animals dead of the disease is more efficacious for preparing the vaccine than cultures of the organism. The method of preparing the vaccine consists in inoculating a calf in the most muscular portion of the body and after it dies removing the black, spongy muscular tissue and cutting it in small pieces and drying it in an oven at about body temperature. The muscular tissue is then firmly ground into a fine powder and heated to attenuate the virulence of the bacilli contained therein. It has been found that it requires an exposure to 85 degrees C. for six to seven hours to bring about sufficient attenuation. The preventive dose for a large animal of this dried, attenuated muscle tissue is 10 milligrams, which is placed in a convenient amount of water and injected subcutaneously.

We will now direct your attention to the production of passive immunity. This is brought about by the use of antitoxins which are the result of injecting animals with gradually increasing doses of the specific organism of the disease, or again, by the bacterial toxins alone. The greatest success has been attained in the diseases of diphtheria and tetanus. The methods of producing antitoxin for diphtheria, tetanus and streptococcic infection are so nearly identical that a brief description of one will suffice for them all. The toxin is produced by growing the organism on beef broth in the laboratory incubator until they have reached the height of their toxicity. The organisms are then killed by the addition of one-half of 1 per cent. trikresol or carbolic acid, and afterward removed from the bouillon by filtration through asbestos wool and a porcelain filter. The toxicity of the filtrate is measured by determining the minimum lethal dose for a guinea pig of a definite weight within a certain time. One hundred times this amount is known as a factor of toxin. Horses are selected that are known to be free from glanders and tuberculosis by the mallein and tuberculin tests, and are injected with

a minute dose of the toxin. The doseage is gradually increased and repeated at intervals from three to four days, until the animal is able to withstand more than three hundred times the initial dose. It is the object of the operator to keep the animal under the effect of the toxin all of the time, yet not give sufficient doseage to cause any tissue injury. In this way the body develops sufficient antitoxin to neutralize a greater part if not all of the toxin. If the animal's blood is examined six or eight days after the last injection it will be found to contain an excessive quantity of antitoxin. Antitoxin is found principally in the serum of the blood, and in the case of diphtheria is capable of being precipitated by ammonium sulphate. The antitoxin is measured in units by determining the amount required to neutralize one hundred fatal doses of toxin for a guinea pig of a definite weight within a time limit.

There is some difference between the inter-relation of the toxin and antoxin in the laboratory test tube and within the animal organism. It has been found when the two are mixed together outside of the body at a given temperature and at a given concentration, the rapidity and completeness with which the union occurs depends only on the degree of affinity each one has for the other. There is no third substance with which one or the other may unite. In the body, however, the conditions are more complex; in this case two combinations are possible for the toxin, one with the antitoxin which has been introduced and a second with the tissue cells. Experiments show that quantities of toxin and antitoxin which are neutral when mixed before injection are not entirely neutral if injected in different parts of the body. In this instance some of the toxin has had time to unite with tissue cells before it could come in contact with antitoxin. The work Donitz illustrates not only the rapidity with which toxin may be bound by the tissue cells, but also the method by which antitoxin effects a cure. In relation to tetanus, he found that if toxin were injected first and the antitoxin four minutes later, a quantity of antitoxin which was largely in excess of the neutralizing dose was required to prevent the development of

tetanic symptoms; if he waited eight minutes, six times as much antitoxin; after sixteen minutes, twelve times as much; after one hour, twenty-four times the simple neutralizing dose was required. A few hours later no amount of antitoxin could save the animal. Similar conditions have been observed in the neutralization of diphtheria toxin by its antitoxin in the body, but to a less degree. These experiments give us a clear conception as to what is meant by the curative action of an antitoxin. It not only has to neutralize the free circulating toxin, but to wrest away from the cells any toxin that has been bound by them. It has been shown that it only requires to neutralize the circulating toxin the equivalent of antitoxin, but for the wresting of the toxin from the tissue cells it requires a great excess of antitoxin. When the highly toxic diseases have developed to such an extent that no amount of antitoxin will effect a cure, the relation of the toxin to the tissue cells has become something more than a chemical union. Further processes of a biologic or biochemic nature have set in in which the toxin may have become an integral part of the protoplasm. It must be remembered that the antitoxin is not capable of repairing any injury to the cells, but it plays its part by tearing away from the cell all or a part of the toxin in order that less than a fatal dose remains in the cell.

It has been difficult to explain why we should not get the same brilliant curative results from tetanus antitoxin as we have gotten from diphtheria antitoxin. In the test tube the affinity between the toxin and antoxin of tetanus is rather weak, and it requires from forty to forty-five minutes before neutralization is complete. On the other hand, in diphtheria the affinity between the two is much stronger, and complete neutralization takes place in about fifteen minutes. Clinical experience indicates that the affinity of tetanus toxin for tissue cells is much greater than that of diphtheria. Again, the toxin of tetanus appears to have its strongest affinity for the cells of the central nervous system and those of the most vital organs. Hence a lower grade of injury may prove more serious than when the toxin is taken up by less important organs that have greater recuperative power. Furthermore, it

seems that tetanus toxin is taken up by the nerve endings and reaches the ganglionic cells by way of the axis-cylinders, whereas the antitoxin tetanus which is injected remains chiefly in the blood and lymphatic circulation. Therefore, the toxin, to a certain extent, is isolated and less accessible to the action of the antitoxin. Lastly, we have no symptoms of tetanus except those that are produced directly by the toxin, and this indicates that the body is impregnated with toxin. In diphtheria it is different, as we have a symptom of the growth of the organism in the throat during the period of its liberation of toxin before there is sufficient toxin absorbed by the system to cause derangement to the functions of the vital organs. In neither case does the organisms circulate in the fluids of the body.

We come now to speak in brief of some of the newer vaccines as well as some of those that have not given the same results as the ones we have outlined to you. The announcement by Koch some years ago of tuberculin as a cure for tuberculosis was received with much enthusiasm. It was not long, however, until it was found that its curative power had been over-estimated and a reactionary period set in in which it was used very little for therapeutic purposes. It still retained its position as a diagnostic agent. There were a number of men such as Trudeau, Pottinger and others who continued to use it in conjunction with the other treatment of hygiene, rest and food, and it has been shown by them to be of much assistance in retarding the advancement of the disease, provided it is used judiciously. Since the original tuberculin of Koch there have been many others manufactured, such as the Bouillon Filtrate of Denny and the Tubercle Residue of Koch, the watery extract of Maragliano and others. They all contain the toxins of the organism and depend upon those to produce an antitoxin within the body. There was conducted in 1900, at the laboratory of the State Live Stock Sanitary Board of Pennsylvania, under the direction of Dr. Leonard Pearson, some experiments which showed that tuberculin when given to cattle in repeated doses over a long period of time, had distinct value in

retarding the advancement of the disease as compared with controls that had received no tuberculin.

In 1902 Pearson and Gilliland published some experiments upon the immunization of cattle against tuberculosis, the immunity being produced by an intraveneous injection of tubercle bacilli. The organisms used for this work were from a case of tuberculosis in man, and were non-virulent for the bovine species. The attenuation, no doubt, was brought about by long incubation in man. This method of prevention is that of true vaccination, and we obtain antibacterial as well as antitoxis immunity against the disease with the formation of anti-bodies. In tuberculin, which is only a toxin of the tubercle bacillus, we can hope for little more than an antitoxic defense. The length of this paper will not permit us to give you the results of the prevention of tuberculosis by vaccination that have been attained by the various investigators in this country and abroad, more than to say that some of the methods devised and tried are most encouraging.

In closing, we wish to say a few words about the latest vaccine of Wright, which have been called by some " Bacterins." They consist of the killed organism of the disease suspended in normal salt solution. The same is injected subcutaneously in the patient. In some of the milder infections, as staphlococci, streptococci, etc., it is claimed they have given remarkable results.

We hope that the next twenty years will yield us the same continued advancement in preventative medicine.

FIFTEEN of the Veterinary Inspectors, B. A. I., at Chicago, have formed themselves into a class for the study of pathology and bacteriology, under the direction of Prof. Maximillion Herzog. Four hours weekly are devoted to the study of the above subjects in the laboratory.

IT is reported that the contemplated veterinary school at the Union Stock Yards, Chicago, which was to be a department of the State University, will not be built, the reason assigned being that the Civil Service Commission would not accept its graduates for the B. A. I.

VETERINARY INSPECTION OF NAVAL SUPPLIES.

By D. Arthur Hughes, Ph. D., D. V. M. (Cornell), Inspector Subsistence Dept., U. S. Army, Chicago, Ills.

The saying of the Hoosier poet, James Whitcomb Riley,

> "I've noticed, mor'n likely so have you,
> That things don't happen when you want 'em to."

seems to find another application in the proposed inauguration of veterinary inspection of the preparation of meats and meat food products for the United States Navy. For a number of years, from the time of the starting of veterinary inspection of the preparation of meats and meat food products for the United States Army, up to the present stage of the development of that inspection system, described in my article in the Review for December, 1906; that is to say, during the last six years, people have wondered why a rigid inspection, found to be necessary if army meats and meat food products were to be properly prepared, would not also be necessary in the case of similar *naval* supplies. The answer, of course, was simple as a, b, c. To assume wholesome, sound meat food products fit for food, as sharp an inspection is necessary in the preparation of naval supplies as has been in operation for six years in the case of army supplies.

Though belated, the move to establish veterinary inspection for navy meat supplies has been made. Hence the American sailor, in a few months, will have the joy of knowing that every reasonable precaution will be taken to secure for him perfectly wholesome animal foods, as has been done for six years for the American soldier. Last spring Paymaster General Rodgers, officer in charge of food supplies for the navy, made an official tour of the West, taking in such packing centres as Chicago, Kansas City and Omaha, in company with the Commissary General of the army, General Henry G. Sharp. Immediately after their return to Washington, orders were sent out to the

Purchasing Commissaries for the army in Chicago, Kansas City and Omaha, that, until such a time as a system of inspection, similar to that in vogue for the army, should be established for the navy, they, and the veterinary inspectors working under them, should assume charge of the preparation of naval stores, and that the same authority over, and care for, navy supplies should be exercised as governed in the preparation of army supplies. At present, therefore, the army inspectors have charge of the preparation of naval supplies.

However, the inauguration of veterinary inspection of supplies for the navy by its own men is not far off. Yea, it now is. Two months ago request was made to the United States Civil Service Commission that it request the United States Department of Agriculture to recommend a veterinary inspector for transfer to the Naval Department, to do service in Chicago the same as that done by the army veterinary inspectors. Accordingly, Dr. Jesse H. White, of the Bureau of Animal Industry, then located in Milwaukee, was recommended, accepted the transfer, and was ordered to report to Lieut. Col. A. D. Kniskern, Deputy Commissary General of the Army and Purchasing Commissary in Chicago, for duty under his direction. Dr. White is, at this writing, familiarizing himself with the army inspection methods and doing duty with the army inspectors, chiefly in the supervision of the preparation of naval supplies.

The appointment of Dr. White is only a step towards the full establishment of an inspection for the navy the same as that already adopted for the army with so much profit to the quality of its supplies. Undoubtedly, it is the plan of Paymaster General Rodgers of the navy to shortly institute a thorough-going veterinary inspection of the preparation of meats and meat food products for his department. The Navy, when compared with the Army, is at a disadvantage in one point. The army has a commissary office, with its corps of clerks, and a Purchasing Commissary (a regular army officer) in charge, at each of the important meat packing centres. The commissary officers, with their veterinary inspectors, can thus closely supervise the manu-

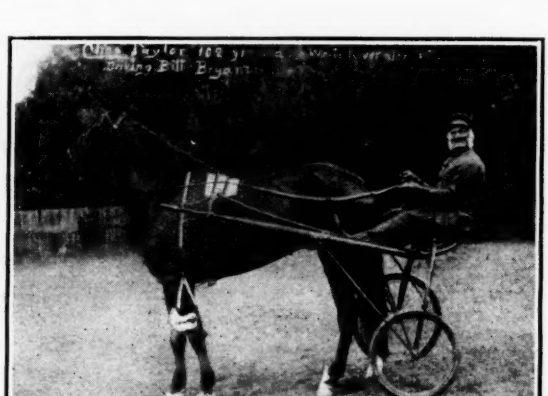
facture of army meat food products. On the other hand, the navy, at present, has no officers at the packing centres, and has been forced to award its contracts for canned goods, for example, on the basis of samples submitted by competitors for the contracts, without knowing how the products contracted for were subsequently made. Up till last spring it thus did not itself have its own officers to inspect the preparation of naval stores at the packing centres; but simply required the packers to manufacture the supplies, under contract, equal to the samples submitted at the time the award was made; reserving the right of the officers at the navy yard where the meat food products were received to accept or reject the goods, if they did, or did not, equal the samples originally submitted.

The fact that the army methods have been so valuable in the improvement of its supplies must have suggested to General Rodgers means to improve the quality of naval supplies. Two steps have been taken, the turning over of the preparation of naval meat supplies to the army veterinary inspectors and the appointment of the first navy veterinary inspector. In due time the navy will probably adopt the whole of the army inspection methods; as it has already adopted, almost bodily, the army specifications for meats.

Were this done, the improvement in quality of the goods would be satisfactory to the navy. Even then, the adoption of veterinary inspection of the preparation of meat food supplies to be used by the Federal government has not gone far enough. The Department of the Interior should have Federal veterinary inspectors, civil service appointees, to supervise the preparation of the meat food products for the Indians. There should be special veterinary supervision of the manufacture of meat food products under contract, for the Federal insane asylums, hospitals, prisons and soldiers' homes. True, the present Federal meat inspection law, administered so admirably by the Department of Agriculture, goes far to control iniquities. Would it not be better, though, if the preparation of meat food supplies, to be used by the Federal government in all the channels mentioned,

was supervised, as has been done so long for the army, and as is to be done for the navy, by veterinary inspectors who are specialists in all industrial, scientific and governmental questions pertaining to the proper preparation of these supplies?

A REMARKABLE HORSEMAN.—Through the kindness of E. H. Stearns, M. D., D. V. S., South Royalton, Vt., we are enabled to present to our readers a photo of Charles Taylor, of White River Junction, Vt. He is nearly 103 years of age, and the horse which he drives is about 20 years old. The time which he made in the last race this year at Tunbridge, Vt., was one mile in 2:27, the last half in 1:12¼.



Remarkable is this for a man of his age, as well as for the horse. Mr. Taylor is a man that has driven in races for seventy-five years or more, and probably has owned some of the best race horses of this country. Nearly his whole life has been devoted to horse racing, and is probably one of the most noted lovers of equine flesh. His sleeping apartment has been with his favorite race horse for many years.

He is a rugged, sound-minded man, owing to the fact that he never inlulged in intoxicating liquors, tobacco or marriage.

THE Veterinary Practitioners' Club of Hudson County, New Jersey, on the evening of December 16, will celebrate their anniversary with a dinner.

THE SURGICAL RELIEF OF ROARING.

By Prof. W. L. Williams, V. S., Ithaca, N. Y.

Presented at the 44th Annual Meeting of the American Veterinary Medical Association, at Kansas City, Mo., Sept. 10-13, 1907.

We had occasion to present a communication to this association at its last annual meeting upon the surgical relief of roaring, embodying a brief description of a modified technic with a report of ten cases, some of the most recent of which had not progressed far enough to determine the result (Proceedings American Veterinary Medical Association, 1905, page 179).

We are now enabled to add somewhat to the recorded results in the ten cases reported last year, along with thirteen new ones, twelve of which have reached a stage where the results are apparently reliably determined.

Case 1. A bay trotting mare so badly affected that she was practically worthless and was being used for trading purposes. The operation was performed on November 10, 1905, and the patient discharged on December 11, much improved. On June 3 the owner reported some noise in breathing, but the animal was gradually improving. The difficult breathing was inconstant and much of the time was not observed. Somewhat later in the summer I was informed by Dr. Crawford, of Athens, Pennsylvania, in whose immediate territory the mare was owned and kept, that she was continually improving, and that when driven at a rapid pace on an ordinary road, went sound.

Case 2. As reported last year, this animal died soon after discharge from abdominal disease, after working but little, though showing very distinct improvement.

Case 3. A brown gelding used for general farm and road work, had become a very bad roarer. He was operated upon on December 14, 1905, and discharged January 17, 1906, distinctly improved. He was put to ordinary farm work in April, and for a time breathed imperfectly when pushed, but gradually im-

proved, until the owner was able to report on the 3d of July that the recovery was complete, and that no abnormal sound was made while at work on farm or road. In a communication dated April 5, 1907, the owner stated that the animal remained sound.

Case 4. A bay trotting mare, which had become worthless for road work on account of roaring. She was operated upon January 29, 1906, and discharged March 14, improved. The owner reported on May 22, 1906, that she was greatly improved and doing satisfactory work. On August 26, 1907, the veterinarian in whose territory the patient was owned and kept when operated upon, reported that the improvement had continued, but that the animal had left the vicinity.

Case 5. Patient a valuable coach horse from the practice of Dr. W. H. Ridge, of Trevose, Pa., which was operated upon at the meeting of the Pennsylvania Society on the 6th of March, 1906. Fifty-one days later Dr. Ridge reported that the horse tested sound at a gallop, and on June 11, of the same year, he was given a keen drive on a tally ho without revealing any abnormal sound. On August 17, 1907, Dr. Ridge further reported the horse still at tally ho work and perfectly sound.

Case 6. A very bad roarer operated upon in our clinic May 25, 1906, and last report stated that he was working sound on August 16, 1906.

Case 7. An exceedingly bad roarer, unfitting him for slow light work. The operation was performed in the practice of Dr. V. M. Knapp, of Danbury, Conn. The operation was highly successful and fully restored the animal to usefulness, was sold at a good price and later died from other causes.

Case 8. A bay road mare, belonging to Dr. C. E. Clayton, New York City. Operation was performed July 6, 1906. The operation was practically without result; the character of the sound was altered, the fluttering or vibratory sound has ceased, but there is still an abnormal sound, as in tracheal stenosis, which is little if any less than the original roaring in volume. In our communication of last year, we related that in an experimental case the arytenoid cartilage had dropped down into the cavity of

the glottis and become firmly fixed there, apparently as a result of cutting away too freely and completely the vocal cords and subjacent tissues. In our judgment we here fell into this error and removed too much supporting tissue.

Case 9. A brown coach gelding, in the practice of Dr. George H. Berns, of Brooklyn, N. Y. Operated upon July 8, 1906. Soon after the healing of the wounds there was still considerable dyspnoea, although there was definite improvement. The improvement has been gradual, until Dr. Berns reported in June, 1907, that the horse was fully restored to usefulness.

Case 10. A brown road mare, in the practice of Dr. W. W. Kennedy, of Fulton, N. Y. The operation occurred on August 2, 1906, and marked improvement followed and has remained, but there is still considerably dyspnoea whenever the animal is rapidly driven. So fas as we can determine from reports we here again fell into the error of removing too freely the vocal cords and underlying muscles, and allowed the cartilage to drop down into the glottis and become adherent there, obstructing the passage of air.

Case 11. A bay trotting gelding, from the practice of Dr. Ross, of New Haven, Conn., operated upon in the clinic of the A. V. M. A. on August 24, 1906. The patient apparently did well for a time, but by October 1 was breathing very badly.

On October 22, in company with Drs. Kelly, Whitney, Bland, Adams and Lyman, the horse was examined and found greatly distressed in breathing, making a loud noise while standing quietly in the stall. Examination of the seat of tracheotomy revealed it enlarged and slight pressure upon the point increased the dyspnoea to the point of threatened suffocation. The animal was cast, the trachea opened at point of tracheotomy, and it was found that one or two tracheal rings had collapsed, one had softened and largely disappeared, the collapse causing almost complete stenosis of the trachea. A trachea tube was placed in the wound pending further decision. The animal later passed into the control of other parties and reliable trace of him was lost.

Case 12. Patient a very bad roarer, property of Dr. L. B. Judson, Winsted, Conn. Operated upon at A. V. M. A. Clinic August 24, 1906. Dr. Judson reported personally on Aug. 6, 1907, that the horse was still in his possession and used in his practice. Under ordinary conditions no abnormal sound can be detected, but by loading him heavily and driving rapidly up hill a slight abnormal sound is sometimes noted.

Case 13. Patient a black gelding from the practice of Dr. Thomas Bland, Waterbury, Conn., had been obliged to wear a trachea tube for one year, because of severe roaring. Operation at A. V. M. A. Clinic, August 24, 1906. Reported by Dr. Bland August 6, 1907, to be entirely cured.

Case 14. Patient of Dr. G. P. Jeffery, Elmira, N. Y., gray saddle gelding, bad roarer. Operation August 31, 1906. On November 27, 1906, the owner reported little or no improvement. On March 15, 1907, Dr. Jeffery reported that he was gradually improving, but that he still roared slightly at times under unusual excitement. Owner had recently ridden him eight miles in forty-two minutes, or at a pace of 11.4 miles per hour, without inducing abnormal sound.

Case 15. Patient occurring in the practice of Dr. W. L. Baker, Buffalo, N. Y. Operation in clinic of New York State Veterinary Medical Society September 13, 1906. Dr. Baker reported animal completely cured in February, 1907.

Case 16. Patient a thoroughbred hunter, a bad roarer, which could not follow hounds. Operation October 1, 1906. When the wounds had healed, after about four weeks, it was found he still roared. The patient was kept under observation for some weeks longer and was finally secured, anæsthetized and the larynx reopened, which revealed the fact that the left arytenoid cartilage, instead of adhering in the normal position to the thyroid had dropped down over the cricoid and adhered there with its antero-inferior or vocal angle projecting out into the glottis, greatly decreasing its lumen, and evidently largely, not wholly, responsible for the continued roaring. The projecting angle was largely excised. The owner reported on July 29,

1907, that the horse had made a thousand-mile journey during May and June, doing the work well, but could not gallop rapidly without roaring badly.

Case 17. Patient from the practice of Drs. Johnston & Backus, Geneva, N. Y. Operated upon in the college clinic December 2, 1906, and discharged on December 23. Case apparently progressed well until in the spring of 1907, or about four months after operation, when dyspnoea developed and became so greatly aggravated that the animal was destroyed. Opportunity for an efficient autopsy was not offered, but so far as could be learned by limited examination the difficulty lay in the inflammation and collapse of the severed cricoid cartilage.

Case 18. A very bad case of roaring in a thoroughbred used in steeplechase racing. The operation was performed in practice of Dr. E. J. Sullivan, Saratoga Springs, N. Y., on November 29, 1906. A trachea tube was inserted during the operation and removed immediately after. On the 4th of March, 1907, Dr. Sullivan reported that the owner and trainer had tested the horse over 5 feet 9 inches hurdles without producing abnormal sound.

Later it was reported that the horse had refused the hurdles when put to training, so has not raced, but the recovery from roaring at last reports was apparently complete.

Case 19. A thoroughbred gelding, entered in the college clinic November 19, 1906. When discharged he had been galloped as hard as considered prudent and tested sound. The owner reported July 30, 1907, that the horse had been in training two weeks, but had not been pushed far enough to determine his ability to stay over a long distance.

Cases 20 and 21. Two hunter geldings, both very bad roarers; operated upon in the college clinic January 16, 1907, and discharged March 4, 1907, after testing sound at a moderate gallop.

The owner reported July 29 that no test had yet been made in the hunting field. They had been tested in farm work on soft ground enough to demonstrate that they were very greatly improved, and at least were sound for ordinary work.

Case 22. Thoroughbred belonging to same party as Case 19. and operated upon in the college clinic April 27, 1907. Discharged June 4, 1907, after testing sound at a moderate gallop. On July 30 the owner reported horse turned to pasture without having been severely tested.

Case 23. Property Dr. B. D. Pierce, Springfield, Mass. Operated upon in the clinic of the Connecticut Veterinary Medical Society August 6, 1907. The horse was a very bad roarer and wearing a trachea tube. Upon opening the larynx there was observed a tumor or firm swelling above the right arytenoid cartilage, while the left cartilage was passive. The usual operation was performed without interfering with the tumor above the right cartilage. On account of this tumor or swelling, about two inches long and projecting over the glottis one-half inch, an unfavorable prognosis was given.

In this list of 23 cases, the results in 22 have been fairly determined, the 23d being too recent for any conclusion, and because of other complications being of little if any value in determining the efficacy of the operation.

Of the 22 cases, 2, or a trifle less than 10 per cent., were in a sense ruined, less than 14 per cent. were left slightly improved or unchanged, while the remaining 17, or 77 per cent., were either greatly benefited or completely cured, and were made capable of rendering satisfactory service.

Of the two cases ruined, one (No. 11) was not due to the major operation itself, but to the tracheotomy followed by chondritis and tracheal stenosis. In the second case (No. 17) the bad results seemed to be due to a chondritis, resulting from the wound of the cricoid cartilage and first tracheal ring with stenosis at this point.

Those cases which were left but slightly benefited or approximately unchanged, Nos. 8, 10 and 16 failed, apparently, because of the too free removal of the vocal cords and underlying muscles.

In our communication of a year ago, we related that in our first operations we had removed the vocal cords, the mucous membrane from the ventricle of the larynx and the inferior bun-

dle of the thryo-arytenoideus muscle. We then became suspicious that we had removed too completely the retaining tissues of the cartilage and allowing it to drop too completely into the glottis and there becoming fixed to partly fill the air passage, and we consequently aimed merely to remove thereafter the vocal cords and mucuos membrane of the ventricle.

Even here we seemed to fall into error because the muscles underlying the vocal cords are so wasted that they have little power in retaining the cartilage in position, and it was only after we had made the second operation on No. 16 that we realized that this displacement of the cartilage into the glottis was a danger to be reckoned with so long as the vocal cords were removed that we abandoned this and confined our intereference to the removal of the mucous membrane lining the ventricle. This is an old operation, attempted by Gunther, apparently, and abandoned by him as inefficient, but we have not been able to find his technic.

As now performed by us the horse is secured in dorsal recumbency under chloroform and with a trachea tube in the ordinary position. The larynx is opened by a median incision through the crico-thyroidean ligament, the cricoid cartilage and first tracheal ring. The mucous membrane of the ventricle is grasped usually at the median margin, where it is attached to the arytenoid cartilage, and an incision is made with a long handle scalpel through the membrane between the arytenoid cartilage and the forceps. The incision is then continued completely around the margin of the ventricle, invading the vocal cords little, if at all. The isolated mucosa of the ventricle is then drawn upon by the forceps and carefully divided from the adjacent tissues, the aim being to dissect out the membrane as a complete sac, necessitating adhesion in the process of healing.

Thus far this change has resulted in more prompt, uniform and complete alleviation of the roaring, but we are not yet ready to state just how much tissue should be removed. It appears to us that once the mucosa has been completely removed from the ventricle, adhesion by cicitrization is inevitable, and if

the adhesion occurs with the passive cartilage approximately in its normal position, it must cease to act as an obstruction to the entrance of air. We have reason to hope that we may be able to avoid by our change in technic, the losses from imperfect cures, which have amounted to 14 per cent., but the dangers from tracheal stenosis either at the point of the tracheotomy or laryngotomy seems to offer difficulties of a more formidable character.

In one case the trachea tube was kept in place only till the operation was completed and the horse was on his feet, and the patient did splendidly. We fear that, generally, we have kept it in place too long, but in two cases where we tried immediate removal we were obliged to reinsert it because of dyspnoea. Even if we could avoid the ordinary tracheotomy entirely the danger of tracheal stenosis would not apparently be obviated, because in one case we appeared to have stenosis from the wound in the cricoid and first tracheal ring, although no tube was used in this wound.

It has been proposed to avoid tracheal stenosis in this region by dividing the thyroid and leaving the cricoid and first tracheal ring intact, but we are unable to determine that such a wound might not be followed by untoward disease of the thyroid. Study upon this point is needed. On the whole, our investigations have thus far proven highly interesting. The proportion of recoveries has been high, all cases, aside from the two instances of tracheal stenosis, if not cured promptly, have either shown constant improvement for a year or more, or at the worst, have remained practically unchanged, in which respect they differ materially from the results following arytenectomy, where cicatrical tumors and necrosis or other diseases of cartilage occlude or deform the larynx, and invite a gradual and usually insurmountable development of dyspnoea.

The operation is simpler, has less danger for the life of the animal, the patient recovers far more promptly, and all in all, while since last reporting, two animals have been practically

ruined by the operation, we yet feel that the results have added to the encouragement entertained last year. In the two animals which were practically ruined the diseases had already rendered them of little or no commercial value, except through the agency of permanent tracheotomy, and this course was still freely open in each case, but few Americans will consent to use a horse while wearing a trachea tube.

We venture to thus briefly lay before you the results of our investigations to date, hoping that they may arouse increased interest in the practicability of the restoration to usefulness of a large proportion of valuable animals affected with roaring.

THE Indiana Veterinary College registered 150 matriculants this year. Its graduates now being eligible to membership in the A. V. M. A., there seems to be now nothing to hinder their rapid progress.

IN a supplement to an act of the New Jersey Legislature concerning fire departments in cities of the first class, passed by the last Legislature, provisions are made for salaries of heads in the fire department in cities of the first class, among which provisions is one fixing the salary of the inspector of horses, or veterinary surgeon, at two thousand dollars per annum. A referendum clause, however, is attached, requiring that none of the provisions of the act are to go into effect until they are submitted to popular vote at the next general election for acceptance or rejection. We are glad to announce that at the recent election this was ratified.

PENNSYLVANIA MEAT INSPECTORS.—The following ten veterinarians have been appointed agents of the State Live Stock Sanitary Board of Pennsylvania in the meat hygiene service of that commonwealth:

A. O. Cawley, Milton, 7 Arch street; H. R. Church, Luzerne, 400 Main street; G. M. Graybill, East Petersburg; D. E. Hickman, West Chester, 210 North Penn street; Geo. B. Jobson, Franklin, 1117 Elk street; Philip K. Jones, Pittsburg, 327 Main street; C. C. McLean, Meadville, 1001 Water street; T. E. Munce, Washington, 44 East Bean street; O. G. Noack, Reading, 54 South Sixth street; J. H. Turner, Wellsboro.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

SUNDRY BOWEL TROUBLES—ULCERATION, CHRONIC PERITONITIS, NECROSIS, PARASITISM, ETC.

By E. A. Weston, G. M. V. C., Launceston, Tasmania.

The first case was that of a draught mare, which was brought in to have her teeth done, owing to the fact that she was not doing well. After the operation she did not do any better and suffered once or twice from dull, colicy pains, which were soon relieved by a little anodyne medicine. This continued for some weeks, when she was sent in to my hospital for treatment. I commenced by giving her a good warm drench, which caused the expulsion of a few strongyles, and then put her on a course of nux vomica, arsenic and gentian. This improved her appetite, which was, however, very capricious. She would start to eat heartily and after a few mouthfuls turn away from the food with loathing. After going out of the hospital she seemed a little better for a time, but soon began to show occasional dull colicky pains again. From this out she gradually went down hill, and finally extensive œdœma of the head and dependent parts of the body set in and was followed in a few days by death.

Whenever the mare was under my care I watched her temperature carefully, but on only about two occasions observed a rise of from two to three degrees.

Post-mortem revealed slight ulceration of the pyloric orifice of the stomach, due to bots, while throughout the small bowels were numbers of large oblong ulcers, together with a few scars, showing where healing had occurred. The long axis of the ulcers followed the long axis of the bowels and they penetrated deeply into the muscular coat. Death was due to septic peritonitis, caused by perforation of one of the ulcers, and resulted after an illness extending over three or four months.

Case No. 2 was a baker's mare, which seemed "to go all to pieces" one day when out on her rounds. She was lame in both

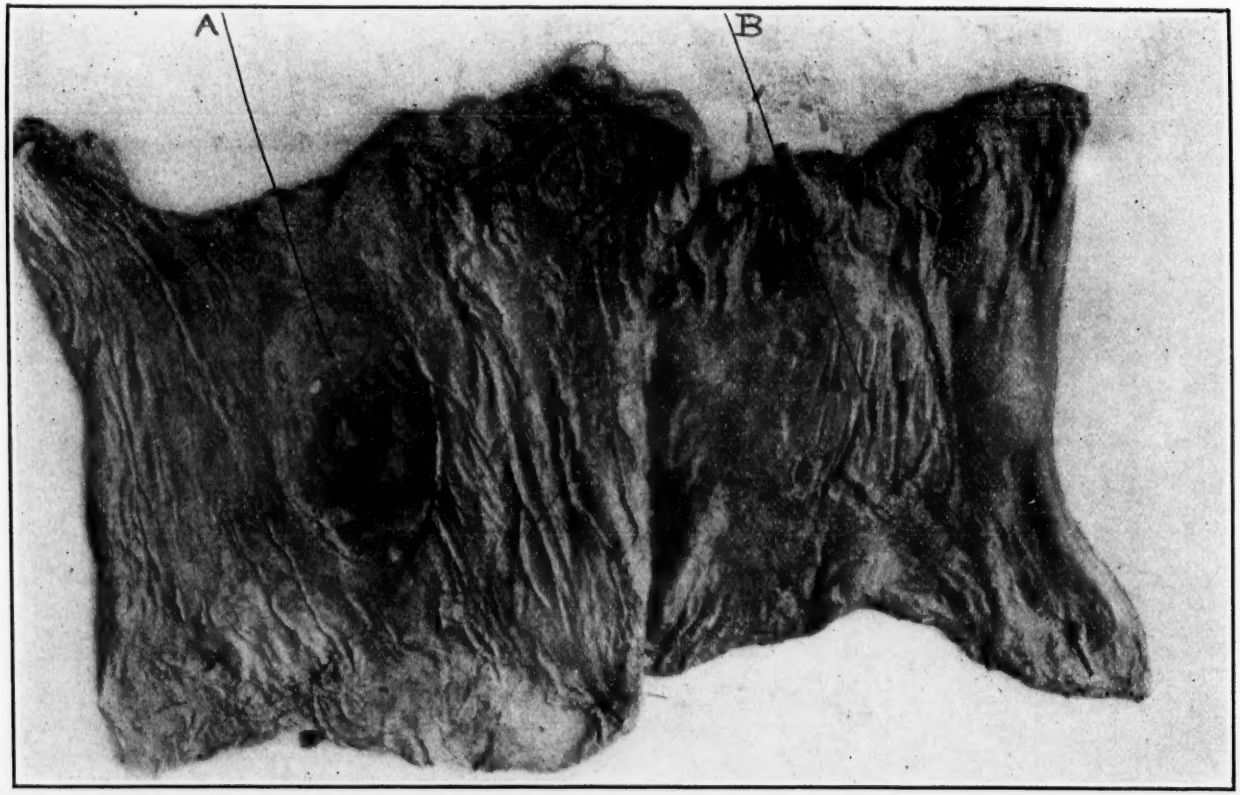
PORTION OF STOMACH OF HORSE SHOWING TWO TUMORS CAUSED BY THE SPIROPTERA MEGASTOMA.

front feet, swelled in the hind legs, showed dull, colicky pains and difficulty in rising, and a temperature of 103 degrees Fahrenheit. I treated her for rheumatism, and for a couple of days she improved a good deal. Then the colicky pains came on more violently, and in struggling to rise she fell and shattered her acetabulum. As she was in fearful agony, I had her destroyed, and on post-mortem discovered that the cause of the colicky pains was commencing peritonitis, due to a small puncture in the duodenum. This puncture was just about large enough to allow an inch and a half nail to pass through it, and looked as though the piece had been punched out with a tiny punch. The bowel contained numerous similal ulcers, several of which had penetrated deeply into the muscular coat. Around these places were numerous bots adherent to the bowel.

Case No. 3 was a big draught gelding, which I had previously treated for acute congestion of the liver. He showed symptoms of subacute colic, lying on his side, groaning and turning his head toward his flank. Temperature normal. The colic soon yielded to anondyne treatment, but appetite remained capricious and the colcky attacks recurred as soon as food was taken in any quantities. After some weeks the horse was sent into my hospital, where I treated him for bots and worms with bi-sulphide of carbon, ol tereb and cantonin, and then put him on a course of tonic medicine, with anodyne doses when necessary. Under this treatment he improved considerably and I wrote to his owner, advising him to take the horse home and turn him out on a warm run. On the day the owner was to come in I saw my patient go down with colicky pains, after we had put him out in the paddock. When the groom brought him in at midday he sent in word that the horse seemed very bad, and on inspection I found my patient dying, with every symptom of a ruptured bowel. He died some hours after, and post-mortem revealed rupture at the pelvic flexure of the great colon, the cause of which I never could determine. In the pyloric portion of the stomach I found two large submucous abscesses filled with inspissated pus. They bore some resemblance to the tumors caused by the spiroptera megastoma and microstoma, but I could only find one degenerated specimen of these worms in them. The mucous membrane covering the larger abscesses had sloughed, leaving the cavity open, and no doubt the presence of these abscesses had caused the repeated attacks of colic.

Case No. 4 was a big roan draught gelding, imported from the mainland. He was in fair condition, but would never put on fat, and always seemed dull and sleepy. I attended him on several occasions for subacute colic, when he would lie stretched out full length, groaning with pain, and I treated him for worms, when he passed a number of strongyles. One day he was turned out on a clover paddock and took stomach staggers. I was sent for at night, but was away and did not see him till the following day, a few hours before his death. On post-mortem the cause of his previous unthriftiness and colicky attacks was revealed. The whole pyloric portion of his stomach was thickly studded with tumors full of spiroptera. The photo shows two or three of these.

Case No. 5 was a five-year old draught mare, recently purchased for £32. On the night of February 23 I was called to see her, when she showed dull, colicky pains, a temperature of 103 degrees Fahrenheit and a peculiar, weak heart sound, to which I will refer again. On the following day she seemed better; temperature and respiration normal, but appetite dull. During the week the manager reported that the purgative ball I had administered had acted and that the mare seemed better, although somewhat sleepy and capricious in her appetite. On March 4, eight days later, I was again summoned, and found her with drooping head and ears, cold extremities and a running down pulse. Greatly to the astonishment of the manager, I stated that she was dying, probably from a punctured bowel. About six o'clock at night I was sent for to make a post-mortem, as the owner and manager were very skeptical regarding the alleged puncture. Post-mortem revealed extensive chronic heritonitis, with gallons of purulent fluid in the abdominal cavity and extensive adhesions between the bowels. A large surface of the great colon was adherent to the peritoneum, and of a bluish color, while the liver was covered with extensive casts of lymph. All the large glands, liver, spleen, kidneys, etc., were softened and degenerated. In the anodeumn were several of the small punched out cavities described in Case No. 2, and which, for want of a better name, I have called ulcers. None of these had, however, penetrated right through the bowel, but in the ileum, near the ileo-caecal valve, was an oblong ulcer, similar to those described in Case No. 1. This ulcer was about an inch and a half long by half an inch broad, and it had become necrotic in the centre. Through this necrotic portion a leakage of bowel



ULCERS IN BOWEL OF HORSE.

A—Perforating ulcer. *B—Ulcer healed.*

fluids had occurred, thus setting up peritonitis. Nature had endeavored to plug the opening by extensive adhesions of the mesentery to the serous coat of the bowel. It is extraordinary to me that the mare should have lived so long and exhibited so few symptoms of illness, considering the extensive lesions of the bowels and peritoneum, which must undoubtedly have existed for some days, if not weeks. As in most post-mortems conducted here, bots and armed strongyles were present in considerable numbers.

Case No. 6 was an aged draught gelding. I was sent for as he showed colicky pain and great dejection with inapetence. On arrival I found him standing with legs slightly apart and head and ears drooping. Temperature was 103 degrees Fahrenheit, the heart rapid and weak and the extremities cold. Very little pain was shown, the symptoms suggesting rapid failure of the vital powers. During the night he died, and post-mortem revealed extensive peritonitis of a subacute type, caused by two large necrotic patches in the wall of the great colon. Through these patches the bowel fluids had leaked, and here again nature had endeavored to stop the leak by establishing extensive adhesions between the serous coat of the bowel and the mesentery. As in the previous case, one wonders how the horse lived so long with such extensive lesions present. As far as I could learn in this case, he had shown no signs of illness to within a day of his death.

Case No. 7 was another aged draught gelding. Twelve months previously I had attended him for colic and had stitched a wound on his leg. On August 2 I was sent for, as he showed very slight abdominal pain, with inapetence and diarrhœa. Temperature, heart and respiration were normal, and I prescribed a couple of anodyne drenches and followed it up with ammon carb., gentian and sodii bicarb. Under this treatment he improved, until the 7th, when he was brought into my hospital suffering from dull colicky pain. Treated him for worms and bots without much result (only a few doses of carbon bisulp were given, as it seemed to bring on colicky pain), and put him on a course of nux vomica, ginger, gentian and soda bicarb. Under this treatment his appetite improved and the colicky attacks became less frequent, until the 15th, when he took a violent attack of colic, with the general dejection, cold extremities and the rapid, feeble heart so characteristic of fatal bowel lesions. As I felt sure the bowel had ruptured, I ran him away to the

knacker's yard and put a charge of shot in his head. Post-mortem revealed two extensive ruptures of the great colon immediately opposite each other. At the seat of one the wall of the bowel had undergone degeneration and a partial rupture had existed for some time, the food being merely retained by the serous coat. The wall of the posterior mesenteric was much thickened by chronic arteritis, and was partially plugged by trombus, in which numerous strongyles were present. The lungs contained a few specimens of the strongylus arnfeldi, which are very rare here.

I have described these cases at some length, as they are the result of many hours spent in making post-mortems, to make which I have often driven miles. The conditions leading to ulceration, necrosis and rupture appear to be very imperfectly understood. I have often thought that the former may be due to wounding of the bowel lining by armed parasites, such as bots and armed strongyles. These wounds undoubtedly exist and it is reasonable to suppose that pathogenic organisms passing along the bowel may become lodged in the wounds and start ulceration. The ulcers are said by medical men to whom I have shown them to resemble those of typhoid, but they do not appear to be confined to the lymphoid tissue, though this is a point that requires further investigation. In some of the cases (Nos. 1 and 5) the ulcers must have existed for some considerable time, and yet in No. 1 they did not cause any very serious symptoms, while in No. 5 they caused no symptoms at all until a few days before her death (she was in splendid condition). This remark also applies to the bowel necrosis seen in No. 6, who had done well up to the time of his death. In reference to this necrosis, it appears to be generally regarded as due to embolism of the small branches of the mesenteric arteries, and this explanation receives support from the prevalence of aneurism and thrombosis of the mesenterics, due to armed strongyles. It would also be of interest to study the effect of bisulphide of carbon on the spiropetra megastoma and miscrostoma. In Case No. 3, I wondered whether the abscesses had been the home of worms which had been destroyed by the bisulphide. This drug is most deadly in its effect on the Ascaris Megalocephala, and should be equally efficacious in its action on most parasites inhabiting the stomach and duodenum.

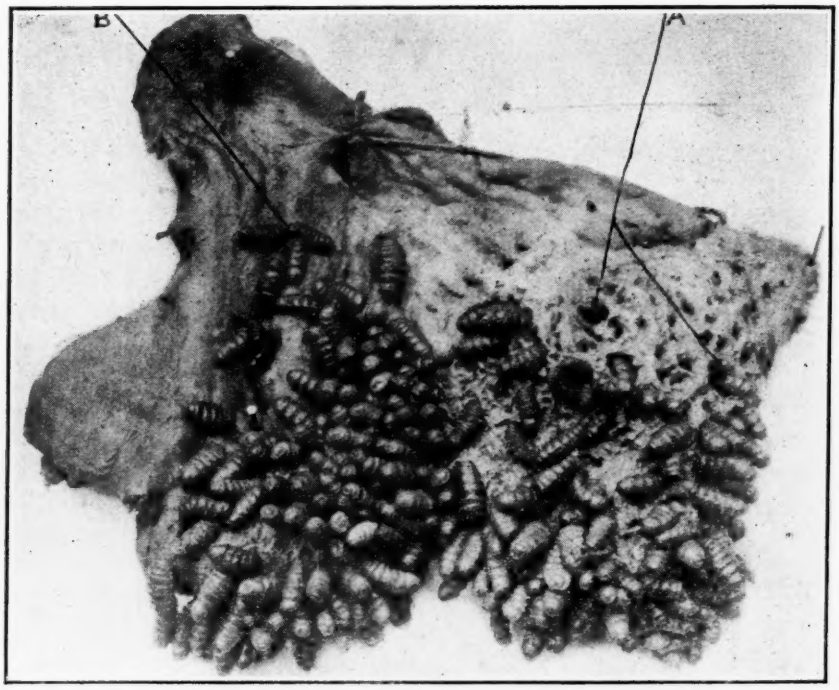
Case No. 9. This was a fine upstanding draught gelding, who to all appearances was in the best of health. My first acquaint-

ance with him was on one pouring wet night, when I had to drive four miles to see him, after returning from a long country trip. On my arrival he had recovered, but I learned from his owner that for the last twelve months or more he had suffered from violent colicky attacks, which a local blacksmith had diagnosed as due to heart disease. The owner believed the attacks to be due to bladder obstruction, so he brought the horse in and I passed the catheter and examined him for cystic calculii, without result. From the history of the case and as the result of a careful examination, I diagnosed partial obstruction of the bowel, probably due to a calculus. The next time I saw my patient was one Saturday, when he was brought into the hospital in a dying condition. He had been in violent agony the previous night and died on Saturday evening. On Sunday I held a post-mortem, and found the large tumor shown in the photograph. It was situated in the mesentery, in the iliac region, and lay almost upon the bowel. On section it proved to be composed of mesenteric glands, which had evidently become infected at some period, with the result that chronic inflammation was set up, and had spread to the adjoining glands and intervening mesenteric tissue. The violent colic had undoubtedly been due to the tumor pressing on the bowel when it was in certain positions, while the fatal termination resulted from a twist in the small bowels. This latter may have been caused when the horse was rolling in pain.

Case No. 10 was a bay draught mare belonging to a farmer, and she was brought to me with the following history. She had always done well to within a couple of months ago, when her appetite became capricious and latterly she had suffered from occasional attacks of dull colic. Her owner requested me to examine her teeth, which I did and informed him that she had a splendid set, and that her symptoms pointed to ulceration of the bowels. I advised turning her out, and told him that if one of the ulcers burst she would go off very quickly. Shortly afterward I received word that she had become worse and died. On post-mortem I discovered one small ulcer in the duodenum, just beyond the bylorus. In the centre of this was a tiny puncture, with the resultant peritonitis.

Case No. 11 was a white draught gelding, brought to me for dental examination, with the history that he had not done well lately. As in the previous case, I found him possessed of a good array of molars and recommended treatment for parasites, which was duly carried out. The horse, however, continued to get worse, and displayed a disinclination to take either food or

water. The refusal of water is almost pathognomonic of ulcerated bowels and is a symptom of great diagnostic value. The animal seems to fear to drink freely, as if it knew that the weight of water might completely rupture the eroded bowel. To return to my patient, however, he dragged along from the autumn, when I first saw him, till early in the spring. By this time he had wasted to a skeleton and ultimately became unable to rise and was destroyed. On post-mortem I discovered chronic gastritis, with a large punched out ulcer in the duodenum. The so-called



BOTS IN STOMACH OF HORSE.

A—Bots penetrating deeply into stomach wall. B—Bots attached on the surface in the ordinary manner.

ulcer was raised above the surrounding mucous lining, due to hypertrophy of the inflamed mucosa, and its centre looked as though a piece had been punched out of it. To the left of this was what I may term an embryo ulcer. It consisted of an inflamed teat-like projection of the mucous membrane with a minute puncture—due I stoutly maintain against all opposition to my friend the bot—at its apex. This case serves to illustrate my theory in reference to the formation of these ulcers. Here

we have the bowel wounded, the entrance of the infective material, the formation of a small submucous abscess, which subsequently bursts and leaves an open wound, this in many cases continues to ulcerate until puncture of the bowel occurs.

It must not be supposed, however, that all cases of ulcerated bowel end fatally, but I have recorded the fatal cases because I have been able to demonstrate on post-mortem the accuracy of my diagnosis. I had in my possession a pony, and now have a buggy mare, both of which were reduced to skeletons by what I diagnosed as ulcerated bowels. The pony is still alive and well, and I can recall at least two other cases, one a trotting filly and the other a draught gelding, which have recovered. The recovery is gradual, convalescence extending usually from six to twelve months, according to the time of year. It is always advisable to turn the patient out on good grass, after treating for parasites, as the natural food seems to allay the gastric irritation, and no doubt on this diet the bowel contents harbor less pathogenic organisms. These remarks, however, refer to ulceration of the pylorus and duodenum. In ulcerated colon there does not appear to be any marked symptoms until the disease has reached a stage at which rupture is imminent and may occur at any moment. The lesions in this region, too, are true ulcers, and are not of the " punched out " type seen in the duodenum.

I have forwarded specimens from Case No. 11 to Veterinary Surgeon Desmond, of South Australia, and doubtless your readers will be interested to hear from him should he make sections and cultures from the bowel.

OBSTRUCTION OF GLOTTIS BY TUMOR:—The accompanying cut illustrates a case reported by E. E. Bittles, veterinarian, New Castle, Pa.

" The small cartilaginous tumor attached to the anterior part of the glottis occasionally would pass into the esophagus, becoming fast there, holding down the glottis until the mare would become unconscious, falling to the ground with great force. This would loosen it and she would arise and seem as well as ever until she had another spell. She lived a year and a half that way, and finally choked to death."

SURGICAL ITEMS.

By Drs. Louis A. and Edward Merillat, Chicago, Ill.

RECENT DATA IN VETERINARY SURGERY.

It is no small chore for the veterinary practitioner to keep well informed in every department of medical research. The scope of veterinary science is a broad one and the kaleidoscopic panorama that is constantly evolving within the kindred sciences appertaining thereto is entirely too rapid for the busy man to follow, however ambitious he may be. The English reading veterinarian is unfortunately not supplied with literature in which veterinary history is systematically epitomized for his benefit and with the object of keeping him abreast with the times in all departments. In America we have only the Review, without which we would indeed be a sorry, hungry lot, but these twelve modest numbers—every one a jewel more valuable than its predecessor—issued during each fiscal year, cannot expound everything. True enough, there are college bulletins, college journals, bulletins of experiment stations, bulletins of the Department of Agriculture and books on different subjects, which appear from time to time, all of which in their aggregate contain a profusion of the newest thoughts, theories and discoveries, but who of us take the time to properly assimilate their contents? It seems that we are either too indifferent or too few in numbers to amply support the publication of complete compendiums of our annual accomplishments, such as are published for the benefit of the practitioner of human medicine. The physician who desires to avail himself of the best opportunities to keep abreast with the times without wading through voluminous volumes may in a few leisure moments acquaint himself with all the newest thoughts and discoveries of the leading pathologists and specialists through the medium of various publications which epitomize medical history as fast as it is made, and with the sole object of keeping its subscribers informed in the progress of each department of medicine. Prominent among these publications is the *Practical Medical Series* of the Year Book Publishers, which consists of a number of small well-bound volumes, issued at regular intervals during each calendar year. Each volume deals with a separate subject. General surgery, general medicine, obstetrics, pediatrics,

eye, ear, nose and throat, gynecology and others are among the volumes already issued for 1907. The work is done by prominent specialists, under the general editorial charge of an able medical scholar, and the names identified with the work at once recommend its character. Murphy, Senn, Mayo, Billings, Parks, Keirle, Delee, Keen, Bull, Morris, and many others are among those who lend their assistance toward the compilation of these valuable contributions.

While glancing through these volumes the value of many of the items to the veterinary practitioner so forcibly suggested itself that it was thought worth while to present some of them to the readers of the REVIEW through this department, as the first installment of "Recent Data in Veterinary Surgery," which will appear in successive numbers. We must, however, beg the indulgence of our readers if some of the subjects appear more medical than surgical. It is sometimes impossible to separate them.

Tuberculosis.—Lydia Rabinowitsch, discussing the relations of human and bovine tuberculosis concludes (1) that the morphologic differences between the human and bovine bacillus is not so constant and distinct as to justify their classification into two disconnected types; (2) that the possibility of infection from cattle has been shown, but the amount of danger cannot at present be estimated; (3) that the war on bovine tuberculosis should be insisted on because of agricultural interests as well as on account of the direct dangers to man.

H. Kossell, reviewing the same subject, classifies the bacillus into two types: *typus humanus* and *typus bovinus,* and says, (1) that the widely spread tuberculosis of cattle is traced exclusively to infection with the bovine type, to which swine are also markedly susceptible; (2) that swine are much more susceptible to the *typus bovinus* then to the *typus humanus;* that tuberculosis of human beings arises *chiefly* from infection with the *typus humanus,* which is transmissible from man to man; (3) that tubercular lesion in human beings can be produced by infection with the bacilli of the *typus bovinus;* (4) that tubercle bacilli of the *typus bovinus* can be transmitted to human beings by food, especially by milk of cows affected with tuberculous udders; (5) that the infections from bovine sources are few as compared with the danger from a consumptive human being.

Acute Rheumatism is a microbian disease. Every year's research adds to the truth of this assertion, which only a few years

ago would have been scouted in defense of the old unproven "acid theories." Poynton and Paine have isolated and cultivated "the rheumatic diplococcus" from the cerbro-spinal fluid of four fatal cases of acute rheumatism, and have produced arthritis, endocarditis and pericarditis by intravenous injections of the cultures into rabbits. Ethyl salicylate is regarded as being *almost* a specific in all forms of rheumatism. The derivatives of salicylic acid are said to possess both antitoxic and bactericidal action on the etiologic agents.

Goiter.—The cause of goiter is as yet unproven, but is thought to be due to increased functional activity of the thyroid body when this organ is called upon in connection with growth and development of the body or to rid the body of bacterial poisons after a serious disease. The beginning of goiter often follows attacks of scarlet fever or similar afflictions. (In horses it is not unusual for goiter to supervene attacks of distemper, influenza, pneumonia, etc.)

Hydrophobia.—N. G. Keirle considers that the now famous Negri bodies are cells engaged in the removal of the tissue which unknown virus of rabies has vitiated, but concludes that the presence of these bodies *is not pathognomonic of rabies,* since they are also found when rabies does not exist and are sometimes wanting when rabies is present. It is recommended that the preventive treatment should not be delayed awaiting the report of these preliminary examinations, when the circumstances are suspicious. On the contrary, when there is any reason to suspect that a person has been infected with the virus of rabies he should be submitted to the preventive treatment by a reputable institution, without delay. (The above remark about Negri bodies is in direct conflict with the prevailing impression of veterinarians. We had been led to believe that Negri bodies were found only in rabies, and that they are strictly characteristic of the disease. Such statements to the contrary are worth taking into account.)

General Anaesthesia.—An extended discussion on the relative safety of ether and chloroform, including the experiences of many surgeons from every part of the world, leaves no doubt as to the greater safety of the former. In Scotland chloroform still holds its popularity, but, according to the confession of an eminent Scottish surgeon, "Because there are no coroner's inquests in Scotland." In short, ether seems to be the safest anæsthetic. The fatalities from chloroform outnumber those from ether almost two to one. Great stress is placed upon the

experience of the anæsthetist. "His diploma alone justifies no man in giving an anæsthetic unless he has had *considerable* experience," says J. E. Lumbard, in discussing this phase of the problem.

In regard to post-anæsthesia complications, pulmonary troubles predominate. Out of 2,500 cases 2.2 per cent. developed lung complications, of which 30 cases were pneumonia, 19 acute bronchitis and 6 pleurisy.

Direct manual massage of the heart through hurriedly made incision into the thorax, either directly or by the way of the diaphragm, is now frequently resorted to in chloroform syncope. Although the effort sometimes fails, it is warranted in view of the frequent successes.

Local Anæsthesia.—Cocaine has not lost its prestige as the chief local anæsthetic, in spite of the numerous substitutes which are from time to time introduced to the profession. In view of its toxicity the anæsthetizing of large areas must be done with weaker solution, which have only the disadvantage of acting slower than the concentrated solutions. The injections should be made rapidly, so as to separate the tissues, which in itself has anæsthetic effects. If layers of tissues are separated by the rapid injection of any fluid, anæsthesia of the separated elements supervenes; hence the advisability of combining this "physical anæsthetic" with the effect of the injected chemical held in the solution.

Hand Disinfection continues to attract the attention of the human surgeon. V. de Mestral concludes a deliberation on this subject by stating that absolute and sure disinfection is practically impossible, and that the only safe method is to avoid contact with the hands. Soap, sublimate and alcohol used consecutively in the order named is given as the best method of cleaning as good as possible. Rubber gloves, previously sterilized, when not found cumbersome for any particular work, are often useful in this connection. In addition to these simple suggestions, which apply equally to veterinary surgery, a veterinarian should practice the wearing of gloves while preparing (casting, etc.) a dirty patient for operation.

For cleaning the hands contaminated with pus or any albuminous substance, lysol, carbolic acid or creolin are preferable to sublimate, as the latter is rendered inert in the presence of these albuminous substances. Barker, in a clinical lecture on "The hands of the surgeon and his assistants," states that the washing

of hands with very hot running water and soap, followed by a brisk rubbing with spirits, is undoubtedly the safest method of dispatching bacteria that so persistently inhabit the human skin, but adds that an absolutely sterile hand is an exception. As to the washing of hands during an operation, Murphy regards the practice as more harmful than beneficial, claiming that the blood-coated hands do not shed the epithelium and thus withhold the bacteria that escaped the initial washing, while Barker holds to the advisability of repeated washing, on account of the unavoidable contaminations while operating. After discussing this subject at length, the writer concludes with a paragraph that should be seriously considered by every veterinary surgeon, viz.: "With a little practice, the routine of employment of instruments in place of the fingers during an operation can be established, and in the end it becomes a habit."

Surgical Drugs.—Bicarbonate of soda is highly recommended as a wound dressing, dry and in solution. Hot solutions, 2 ounces to the quart, are injected into the wounds and then the dry soda is powdered over them and covered with appropriate bandages. *Iodin,* in the form of pure crystals, is said to possess a higher antiseptic potency than any of the ordinary dry dressing powders. It is easily applied in this form by first dissolving it in ether and then injecting the solution into the wound. The ether soon evaporates, leaving an even coating of iodin crystals over every part of the traumatic cavity. The application is made as soon as the bleeding has ceased, so that the coating is not immediately washed off. It is, however, at the subsequent dressings that the greatest benefit is obtained from this energetic antiseptic treatment. *Solutions of ammonia chlorid,* 6 per cent., are mentioned as having excellent effects in clearing up opacities of the corona, both in old and new ones, excelling the results from any of the older lines of treatment. A *varnish for wound dressing* is made from mastic, 20 parts, chloroform, 50 parts, and a few drops of linseed oil. This varnish adheres perfectly to the integument and is desirable where perfect occlusion is essential. It is the artifice of Japanese army surgeons, and was used during the Manchurian campaign.

Sensibility of tissues.—It is probably a surprise to many, who have never given the matter sufficient study or thought, that many of the organs and tissues of the body, usually regarded as being highly sensitive structures, are not supplied with sensory nerves at all, and in short, are insensible to all pain, pressure,

heat and cold. The totally insensitive structures of the body are the brain, bone cartilage, the heart, blood vessels, the thyroid body, the liver, the spleen, the pancreas, renal parenchyma, the internal genitalia of females, the stomach, the intestines and the gall bladder. As elemental as these statements are, it is remarkable that they are relatively new disclosures, brought about by surgical manipulations of these organs in the absence of general anæsthesia. It is not unusual now-a-days, whenever general anæsthesia is contra-indicated from any cause to perform laparotomies with only local anæsthesia of the abdominal paries. Local anæsthesia of the abdominal wall and ether intoxication (etherrausch) are frequently practiced together while the abdomen is being incised, but the latter is discontinued as soon as the viscera are exposed. As the viscera are deprived of sensation anæsthesia is unnecessary while these are being operated upon.

Hemorrhage.—The modern treatments of hemorrhage include: (1) The administration of artificial sera: normal saline, Ringer's solution or Locke's solution; (2) Posture; (3) Compression; (4) The administration of Stimulants; (5) Blood transfusion. Artificial serum transfusion has its limitations, because only a certain amount of these solutions will remain in the blood vessels. When pushed they accumulate in the intestinal tract, lungs, liver and spleen to the menace of the economy. In the editor's own words: "The use of these solutions is exceedingly valuable, but there is an obvious limit to their usefulness." The resort to stimulants is of limited value. Their value diminishes with the increasing gravity of the hemorrhage, and when the ænemic centres no longer respond, the injudicious use of such drugs as digitalis may functionally damage the heart by the susceptibility it retains to such drugs. Crile and Dolley have recorded some valuable experiments on direct blood transfusion. When the diminished blood volume threatens to result fatally the volume must be restored, and since the artificial sera will only partially effect the required restoration, blood itself must be supplied. But the blood of one species will not answer for that of another. "A man must be treated with another man's blood." That of an animal will not assimilate with the human fluid to serve any useful purpose. The technic of the operation consists of uniting the proximal end of an artery of one subject to the proximal end of an artery of the other, instead of making a proximo-distal anastomosis. This order is observed to avoid excessive blood transference. The cut arteries are clamped until

the artificial anastomosis is effected and then the clamps are released, and the blood is allowed to flow until a sufficient amount has been transferred. Every degree of hemorrhage (experimental) was treated by this method. Favorable results were obtained even when animals were bled at once to a presumably fatal degree. Several clinical cases are mentioned wherein the transfusion was carried out with good results.

"*Invisible Surgery.*"—The healing of cutaneous incisions without leaving an indelible hairless scar has been previously mentioned to the readers of the REVIEW, since which time it has been our privilege to apply the method in many operations with flattering success in animals. Monks (1899) and Aymard (1906) first suggested the idea of incising the skin at an angle, so as to produce a beveled flap (instead of a straight juxtaposition of the edges) and thus leave no blemish of the epiderm.

Monks first applied the method in treatment of scalp wounds, while Aymard applied the principle to operations to other regions, especially the more exposed parts of the body. To-day the beveled incision is standard; it is adopted not only for all incisions in exposed parts of the body when thought expedient in the performance of operations, but is frequently utilized in the treatment of accidental wounds.

In animal surgery, when blemishing is to be avoided, the beveling of the skin flaps is par excellence the best incision of the skin, but the principle may be applied often to good advantage for the more important purpose of assuring a union. The flap brings a greater *contact area* and thus increases the chances of primary union, even when sections of skin are sacrificed in the operation, such as would necessarily occur in the ablation of a growth that is riddled with cutaneous perforations (shoe boils, etc.).

Magnesia Sulphate in the Treatment of Tetanus.—The transfusion of this saline in solution (three drams to the pint) is given as a new treatment for microbian tetanus. Greely (Brooklyn) reports two cures, at least one of which seems miraculous. The solution may, of course, be given *ad libitum,* in the jugulars, subcutaneously, and into the peritoneal cavity. Several years ago Blake, and later Logan, mentioned the potency of this drug in tetanus, but no special notice had been taken until Greely reported his two cases in September, 1907 (*Jour. Am. Med. Assn.*). The method was tried on one horse suffering with an acute attack, and although there was a marked palliation of the contractures

during the twenty-four hours succeeding the administration, the paroxysms recurred and finally proved fatal. Whether the solution has a neutralizing or else an eliminating effect on the tetanic toxin is not known, and more data are necessary to establish its real worth.

(*To be continued.*)

AT the last annual meeting of the Massachusetts Veterinary Association, Secretary Frank J. Babbitt, of Lynn, was promoted to the Presidency, and Dr. William T. White, of Newtonville, succeeded to the Secretary's portfolio.

"SINCE I have been a subscriber of the REVIEW, I have seen a great improvement in the paper, and cannot see how an up-to-date veterinarian can be without it, and the price is within the reach of all."—(*E. H. Stearns, M. D., D. V. S., South Royalton, Vt.*)

STATE VETERINARIAN WILLIAM HERBERT LOWE has been retained by Rutgers College and Scientific School—the New Jersey State College for the benefit of agriculture and mechanic arts—New Brunswick, N. J., to lecture on veterinary science before the short course students in agriculture.

PRESIDENT DALRYMPLE has reappointed Dr. D. Arthur Hughes a member of the Committee on Intelligence and Education of the A. V. M. A. Dr. Hughes is to investigate "The Veterinary Sanitary Laws and Regulations of the Several States: How their Formation and Administration Exhibits the Progress of Veterinary Intelligence and Education in the Different Sections of the Country."

PURSUANT to a joint resolution passed by both houses of the New Jersey Legislature and approved by the Governor, a commission has been created to investigate the live stock industry of that state, particularly the horse industry, and to make recommendations thereon to the next Legislature. The commission is composed of one Senator, one Assemblyman, the President of the State Board of Agriculture, the Secretary of the State Board of Agriculture, the Master of the State Grange and Dr. T. Earl Budd, as the representative of the veterinary profession.

ABSTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By J. P. O'Leary, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

Congenital Tuberculosis in a Calf [*Prof. Rievel, Hanover*].—Prof. R. found numerous tubercles, some of which were the size of a Brazil nut, in the thoracie viscera and liver of a calf twelve days old, which were sent to him for examination. The larger tubercles were difficult to incise, a grating noise being perceptible when cutting through them. These tubercles had a yellowish dull centre, in which was found calcified granules surrounded by a grayish white border zone. The pumonary lymph glands and the mediastinal glands were considerably enlarged and studded with caseous foci, containing innumerable grayish white calcified granules. On the liver similar lesions were found. According to the accompanying report, it was evident that also the kidneys, messenteric lymph glands and all the body glands were affected. Rievel found typical tubercle bacilli in relatively large numbers. In the second case, a calf fourteen days old, which was born of a cow that coughed almost incessantly, had a poor appetite and was emaciated, the same conditions were present. In this case, too, the nodules and lymph glands contained tubercle bacilli. In both cases the calcification of the tubercular nodules indicated intra-uterine infection.—(*Deutsche Tierarztliche Wochenschrift,* 1906, No. 15.)

Endemic Cancer [*Dr. A. Sticker, Asst. at the Imperial Surgical University Clinic, Berlin*].—Dr. Stickler had the opportunity to compile very interesting statistical data in a town in which an accurate death register was kept. In a low lying street in this town there occurred in certain houses during the last fifty years, proportionately, many cases of cancer. From 1825 to 1905, eighty years, there occurred in this small town 41 fatal cases of cancer, and of these 25 occurred in 11 houses in the above-mentioned street; also from these 41 cases 23 occurred in 7 families.

Hitherto we sought to explain the frequent occurrence of cancer in houses and families as caused by alluvial and soil conditions, blood relationship and heredity. The transmissibility of cancer is no longer a hypothesis, as thousands of experiments have already proven. The frequent occurrence of cancer may be naturally explained from person to person. By reason of the numerous experiments conducted, it has been proven that tumor cells possess great resistence to thermial, mechanical and other influences, and that also the transplantable, as well as the embryonal, wandering tumor cells may lead to a prolonged *vita latens*. It is not improbable, too, that the cancer cells remain viable in houses exterior to the human body.—(*Zeitschrift für Krebsforschung*, 5, *Bd.*)

CONCERNING THE ANÆSTHESIA OF HORSES AND DOGS BY MEANS OF INTRA-PERITONEAL INJECTIONS OF CHLORAL HYDRATE [*Prof. Sendrail*].—As intravenous injections of chloral hydrate are dangerous for producing anæsthesia in the domesticated animals, and rectal infusions of the same agent, on the other hand, are unreliable, the author has experimented with intra-peritoneal injections of chloral in horses and dogs. Sendrail performed his operations in this way, he punctured the flank superiorly with a trocar, to which he attached a rubber tube and funnel, through this he poured the chloral solution into the abdominal cavity. He states there is little danger of injuring the intestines, as they yield to the pressure of the trocar. The chloral hydrate must be in a 10 per cent. solution when used for dogs and horses, the dose being computed in proportion to the body weight, 1 gram to 10 kilograms for the horse, consequently, the dose of chloral for the animal may vary from 25 to 75 grams. For the dog we should give 1 gram to 3 kilograms body weight; the dose for this animal may vary from 2 to 12 grams. From such doses in these proportions no ill effects are to be feared. At least ten minutes after the injection the animal lies down, and in a few minutes is fast asleep and insensible, without having previously passed through the stage of excitement. This state of surgical anæsthesia lasts at least half an hour, but the animal may lay a whole hour without scarcely moving. After this the animal stands upon its feet, its gait is slightly tottering and consciousness partially returns; the patient fully recovers the same day. In those cases where there is protracted narcosis, due to too large a dose of chloral or a special susceptibility on the part of the animal to the action of the drug, sensibility may be accelerated

by the eliminating action of pilocarpine injections. The advantage of administering chloral hydrate in this manner is, that it does not influence the action of the heart in the least, and again, that narcosis through this agent is not contraindicated in cardiac diseases, as is the case with most other remedies. In operations it must be borne in mind that chloral is a vaso-dilator. The ideal narcosis following the use of chloral, the perfect accuracy as to its action, the simplicity of its technique, the ease and rapidity with which somnolence sets in and the possibility for the operator to administer the anæsthetic himself, which relieves him of much anxiety, these are all advantages which should encourage the use of this method.—*Revue de Toulouse, Jan.* 1, 1907.)

CLINICAL EXPERIMENTS ON HORSES WITH REGARD TO THE ACTION OF THE LOCAL ANÆSTHETIC ALYPIN [*Dr. A. Dittmer*].—Dittmer had experimented with alypin, a glycerine derivative and substitute for cocaine, for differential diagnostic purposes in minor surgical operations, and also for toxicological investigations. He arrived at the following conclusions:

1st. That alypin is fully equivalent to cocaine in action as an anæsthetic.

2. That alypin is ten times less poisonous than cocaine, as the first symptoms of poisoning after the use of alypin occurred when doses of .006 grammes per kilogram body weight was administered, while toxic symptoms appeared following the use of cocaine in doses of .0007 grammes.

3d. Alypin admits of sterilization without undergoing decomposition and remains permanent for a very long time.

4th. The action of alypin is twice as rapid as that of cocaine, a fact which is of the greatest importance in operations and for diagnostic injections.

5th. Alypin is somewhat cheaper than cocaine.

6th. Alypin produces a slight hyperæmia.

Consequently, alypin proffers a most serviceable substitute for cocaine and deserves to supplant the use of the latter in veterinary practice. Dittmer usually prescribes a 3 per cent. solution (0° 3 grammes, 10 *aqua destillata*).—(*Monatshefte für prak. Tierheilk, XVIII Bd.* 5, *Heft.*)

EXPERIENCE WITH YOHIMBIN-SPIEGEL DURING THE YEAR 1906 [*Dr. Holterbach, Offenburg.*]—Holterbach discusses the question relating to the sexual action of yohmbin on impotent and sterile animals. He takes advantage of the numerous brief reports of fellow practitioners, to whom, apparently, trial

samples of this remedy has been sent by the chemical factory at Gustrow, i. m. These casuistical notes prove that yohmbinspiegel is a valuable agent, and probably the best aphrodisiac on the market at the present time. Taking as a basis the publications of Oberwarth, Müller and Strübell, Holterbach justifiably concludes that the action of yohmbin is not limited to the genital sphere alone, but also that this alkaloid plays an important part in the treatment of female diseases. Of course, where retrogressive changes have taken place in the ovaries, such as atrophy and so on, the drug is of no avail. Holterbach is also of the opinion that in the administration of yohmbin the symptoms of heat can be produced at will and independently of periodic œstration. This point, possibly, has become a matter of importance for breeders and others. From a clinical case of distemper, with paralysis of the hind quarters, Holterbach has been able to testify to the prominent action of yohmbin on the central nervous system, as described by Strübell; also that it increases and maintains an abundant supply of blood to the brain and spinal cord when it is prescribed in medicinal doses, and consequently stimulating the body functions in general. Holterbach has also used yhombin as an anæsthetic for the gastric mucous membranes in a case of nervous vomiting in a dog (.01 to 100 aqua feroid), a tablespoonful every quarter of an hour. Holterbach corrects the doses formerly recommended; he administers now continuously small doses, which are tabulated as follows:

Horse and cow	.05
Swine	.01
Sheep and goat	.01
Dog, 10 kilograms	.00025
Dog, 25 kilograms	.001
Dog, over 25 kilograms	.025

To be given 3 to 6 times daily as a sexual excitant and 6 to 10 times daily in paralysis. The use of the tablets is to be preferred, on account of the accuracy of the dose.—(*Deutsche T. Wochen*, 1907, *No.* 13, 14.)

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

AN UNUSUAL FOSTER MOTHER [*Alexr. Levie, F. R. C. V. S.*].—Record of a case which is illustrated by photo: A blood

mare has a foal, she dies two weeks after with twist in the bowels. A cow was procured to provide milk for the foal. The youngster took readily to drinking milk from the pail. On the fourth day after the mare had died and as the cow was being milked, the foal poked her nose in the pail, and as the man was milking the cow tries to hold the teat in the foal's mouth, she eagerly grasped it, and ever since of her own accord sucked the cow. The photo shows the foal sucking the foster mother at the age of nine weeks old.—(*Veterinary Record.*)

MAMMARY TOXOEMIA OR PSEUDO-MILK FEVER [*Edward R. Symthe, M. R. C. V. S.*].—Concise story of six cases unassociated with the act of parturition, and which the author thinks is the result of toxic poisoning arising from the mammary gland. The first case occurred in a cow three months in calf. The second was six months. The third was barren and had a calf the previous year. She had then milk fever. The fourth was also barren. The fifth was due to calve in a week and the sixth was two months in calf. All had about the same symptoms: recumbent position, inability to rise, unconsciousness. All were treated in the same way, that is, the usual treatment of milk, fever, and all recovered without difficulty in a few hours. Usual injection of the udder was resorted to in all. The success of the treatment proves the trouble to be an infection purely of the udder, as previous treatment without the injection resulted in many fatalities.—(*Veterinary Record.*)

PROLAPSUS ANI IN A PARROT [*E. Wardrop, M. R. C. V. S.*].—Since three weeks the poor bird had the posterior part of its intestine protruding for about one inch. This was highly congested and discolored. Shown to several parties, no one had seen fit to take care of the animal and had given an unfavorable prognosis of the case. The author applied the following treatment: The feathers were clipped around the anus, warm fomentations applied to the bowel for an half hour, and with the aid of a little vaseline, with careful manipulations the intestine was returned into its place. The finger was kept over the anus for a while, or until all straining had subsided, and the bird placed in its cage and has been well ever since.—(*Veterinary Record.*)

CROUCHING [*Lieut. H. T. Ryan, A. V. C.*]—This is the name which the author thinks best for a condition or disease which he has found very common in his practice. It attacks all animals, males or females, but yet has not been seen in stallions. It is generally observed when the animal is being mounted, and

it appears as if the rear of the arch of the saddle was hurting the back and that the animal was flinching from the pain. The horse moves along for a few yards with the hind quarters dropped and hocks bent, but very soon assumes the normal position and goes along all right. The author has observed this trouble more in India than in England. He has also noticed that the same animal doing the same work, using the same saddle and having the same attendant, the crouching ceased when taken to another part of the country and recurred when the animal was taken back to former place or to certain others where the condition existed. Lieut. Ryan has made careful studies of this condition and looked eagerly into what was the cause. Careful examinations in relation to the effects of bad saddling were taken into consideration, but in the many cases that were studied the condition of the saddle could not be accused as the cause of crouching, which in some cases were such as to render the animal entirely useless. Many forms of treatment were also put to test, but only one gave him good results and gave positive recoveries, it was a change in the diet of the animal. Indeed, let us read what the author says: "I tried a whole series of experiments in foods and different foods and combinations of foods, and I found that after six weeks animals were cured. I found that when the ration of green lucerne was stopped a marked improvement set in and all symptoms of crouching disappeared within seven days. Once the animal was put back to his diet of lucerne, within three days all the symptoms would return with the same severity." If, however, instead of giving the usual ration of 10 or 15 pounds of lucerne, which is accompanied with the appearance of crouching, that plant is not administered the disease will disappear entirely. The observations of Lieut. Ryan are quite numerous and prove the value of his investigations.—(*Veterinary Record.*)

DENTIGEROUS CYST IN A FOAL [*C. W. Townsend, M. R. C. V. S.*].—First case of this nature met by the author, a nine months filly had a swelling about the size of an orange near the base of the off ear. There was a small hole on the concha and profuse discharge flew from it. A probe introduced in the fistulous tract came in contact with a hard substance, a foreign body of some kind. After disinfection an incision was made upon the swelling, white creamy pus was removed and a cavity exposed with a hardened body enclosed in a thin membrane. This was removed, the parts scraped with a curette and dressed with weak solution of iodine. Recovery was uneventful. The cyst

was somewhat like a molar tooth and measured barely two inches in length.—(*Veterinary Journal.*)

INTUSSUSCEPTION OF THE ILEUM—PROCTOPEXIA AND RECOVERY [*F. J. Taylor, M. R. C. V. S.*].—Eight months' fox terrier has had catarrhal diarrhœa for a fortnight, seemed to have no abdominal pains, except constant desire to empty his bowels. When seen he had prolapsus of the anus about 8 inches in length. When this is returned the intussusception can be felt with the finger. The prolapsus returns as soon as an evacuation takes place. "Laparotomy is performed, the intussusception reduced "by gentle mechanical traction and the bowel sutured to the "abdominal wall by three sterilized gut sutures, the bowels were "carefully inflated with a warm oily enema, which was pressed "through the lately intussuscepted portion by the fingers before "closing the abdominal wound." The abdomen was closed with Lempert's sutures and bandaged. Rocovery was uninterrupted. —(*Veterinary Journal.*)

A CASE OF RANULA IN THE HORSE [*C. Aggio, M. R. C. V. S.*].—Valuable huntress is disabled, as she has in the mouth a large jelly-like swelling on the off side of the frœnum of the tongue. She grew worse and in the evening the swelling extends to the tongue and the lips. A bold incision is made through the swelling under the tongue and the contents appear looking like jelly. Chisol lotions were prescribed. Improved; the next day she grows bad again, when the tongue protrudes and is much swollen. An incision is made from the base of the tongue to the apex, and in some hours the animal was much relieved. Boracic acid and glycerine completed the treatment, which had to be kept up for fourteen days.—(*Veterinary Journal.*)

TWO INTERESTING OUTBREAKS OF VEGETABLE POISONING [*C. Aggio, M. R. C. V. S.*].—A number of yearlings, heifers, were turned out into a field where hemlock was in great quantity, and of which the heifers partook freely. Soon one and two others showed signs of sickness. Diarrhœa, with clotted blood, sunken eyes, staggering gait. All the animals were taken off the pasture, treated with tannic acid and glycerine night and morning, and in a few days all had recovered. Two ewes had died. They had been off their food for some days, had vomited and been unable to rise. There were others which did not look well. Post-mortem showed inflammation of the stomach. While examining the other animals and looking for the condition of the pasture it was found that the animals had

an opportunity of eating cuttings from laurel trees thrown in the pasture. Treatment with linseed oil, oatmeal gruel and whiskey was ordered. Nine other animals died.—(*Veterinary Journal.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

SARCOMA IN THE LONG VASTUS MUSCLE OF A MARE [*Dr. Felice Cinotti*].—In 1904, a bay mare, fifteen years old, was operated and recovered of a sarcomatous growth of the base and left side of the tail. Two years later she came before the author because, since a few weeks, she has on the outside of the lower part of the right thigh a tumor which is rapidly increasing in size. As big as a man's fist, the mass is covered with skin not adherent to it. It is rather loose in its deep attachments, well defined, with edges édematous; it is not painful and can be handled without giving rise to any manifestations on the part of the animal. The mare was pregnant and otherwise in excellent condition; one explorating puncture and examination with the microscope revealed its sarcomatous nature. After waiting for the delivery of the mare, she was cast and prepared for an operation, the growth during that time having considerably enlarged and being as big as the head of a boy. A large incision, U shape, was made and a flap of skin 18 centimeters dissected and raised by an assistant. With another incision of the same shape and dimensions made on the aponeurosis underneath the neoplasm was exposed and removed, beginning the dissection by division at the curve line of the U. It was found that the growth had extensive adhesions with the semi-tendinosus, gastrocnemius and long vastus. The removal demanded careful dissection on account of the large trunks of nerves surrounding. The tumor taken off, there remained a large cavity, surrounded by tissues apparently healthy. The wound was closed with strong sutures and recovery was comparatively free from any serious complications. The growth weighed 1,325 gramms, was 21 centimeters long and 13 centimeters thick. Several months later, the mare had to be killed, as suddenly numerous tumors made their appearance on the stump of the tail, under the skin of the thorax and abdomen, in the mammae and in the intermaxillary space.

Their rapid development interfered with the general condition of the animal and she had to be destroyed. Growths of the same nature were found in the lungs, heart, subcutaneous tissue, kidneys, iguinal and mesenteric glands, in fact all over the body.—(*Il Nuovo Ercolani.*)

FRACTURE OF THE OS PEDIS IN A HORSE [*Dr. Felice Cinotti,* of the Veter. Institut. of Pisa].—While in harness, this horse got frightened and ran away, injuring both of his hind feet terribly, and after a long chase, was at last secured. Both feet had been wounded by one of the hind shoes, which had become partially loose, but the left foot was the most injured. The animal received such attention as the indications seemed to demand, but did not do well, and he was brought to the attention of the author, who, after casting the animal, made a minute examination, which revealed a rather bad condition of things. The wall of the foot was broken, the velvety and the podophillous tissues were torn and fistulous tract were running down to the os pedis, but, although this felt rough to the probing, no necrosis or other lesion was found on it. Notwithstanding the most careful antiseptic dressing applied after removal of diseased structure and all facility kept for the wound to discharge and to heal, no improvement was obtained after the operation. After waiting a few days and the dressing once taken off, although the wound had improved in appearance, while probing the fistulous tract that run to the os pedis, there was received the impression of a piece of bone being loose. This was indeed the case, and with a fine pair of forceps a fragment of the third phalanx was extracted. It weighed 4 gramms and measured 52 millimeters in length. It was 19 millimeters in its middle. The animal grew worse rapidly and had to be destroyed. There was nothing found at the post-mortem examination of the other foot.—(*Il Nuovo Ercolani.*)

COMPLETE TRANSVERSAL FRACTURE OF THE SCAPULA IN A DOG; FRACTURE OF THE OLECRANON IN A DOG [*Dr. Felice Cinotti*].—The first of these cases was observed in a dog that got injured by being struck by an automobile. The left leg was the seat of the trouble and the diagnosis easy to make, although considerable swelling existed on the scapular region. This prevented the immediate application of an immovable dressing and required four days of local treatment to have it subside and allow the application of the bandage of Delwart, made solid with a coat of resin on its outside. The result was perfect, and in thirty days the bandage was taken off and the

leg in condition to receive methodic massage and moderate gymnastics. In the second case the dog got injured in trying to jump a ditch. The dog miscalculated his effort, and in coming to the ground exhibited great lameness of the left fore leg. While standing the animal rests himself alongside the wall, the shoulder is less oblique than that of the opposite side, the arm forms a smaller angle at the elbow joint, which is much lower and flexed. In manipulating the leg the elbow is found painful, swollen, and in flexing it to excess it is noticed that the muscles are not so tense as they ought, and that the top of the cubitus is formed of two pieces. It is evidently a simple, transversal fracture of that bone without cutaneous complications. Extension of the elbow gives a plain sound of crepitation. The owner having objected to the metallic suture of the two fragments of bone, a simple dressing with immovable bandage, the leg being placed in extreme extension, was applied as well as possible. After 27 days union was solid and a large callus formed. With a little time the recovery was perfect.—(*Il Nuovo Ercolani.*)

QUADRIGEMINAL DELIVERY IN A COW [*Dr. Umberto Selan*].—This animal has already had four deliveries, and every one passed off normally. This time her pregnancy was not accompanied with any thing particular. One day she suddenly made violent efforts, which were followed by the rupture of the bags and escape of abundant quantity of fluid, and giving in about one hour after the expulsion of four little calves. The first one was a male and came out dead. The second lived but two hours and the others did not survive but a very short time, notwithstanding all the care that they received. They were all delicate, a little smaller than a small terrier and weighed in average altogether 8 kilograms.—(*La Clinica Veterinaria.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

PURULENT PLEURISY TREATED BY THORACENTESIS IN A COW—RECOVERY [*Mr. P. Bergeon*].—This case occurred in a five years old cow, which had the following history: In August, 1903, she had a swelling as big as the fist, back of the elbow, about the middle of the chest. This was puffy and painful to pressure. Blistering ointment was applied and three days

after fluctuation was evident and a large abscess was open, giving escape to reddish gray pus, having a very offensive odor. In exploring the cavity a sharp body was detected and removed. It was a fragment of a long knitting needle, rusty, and measuring about seven centimeters in length. The owner then remembered that six months previous the cow had coughed a great deal for several days, and it was probably at that time that she had swallowed the needle. The abscess once open was treated, and in three weeks recovery was complete. In May, 1904, the animal was taken sick and presented some alarming symptoms. Complete anorexia, anxious countenance, contracted features. Pulse small and thready. Dulness on percussion on the lower third of the left side, and well marked on an horizontal line. No rale or abnormal sound on auscultation. No respiratory murmur, where there is dullness on percussion. Nothing abnormal on the right side. Remembering the accident of the previous year, an abscess of the lungs is suspected and serious prognosis advanced. Treatment: Severe mustard poultice, pilocarpine and expectorating electuary. As the animal seems to grow worse, thoracenthesis is performed and six litres of strong smelling and grayish pus are extracted. Four litres of weak solution of iodine are injected to wash the cavity. The next day four more litres of pus are taken away and same washing performed. After a few days, as there is no improvement, a free incision is carefully made and a drainage tube inserted, allowing the escape of the pus and the iodine washing to be easily performed. After two days there is a marked improvement, which continues to manifest itself in such a manner that, after ten days, all treatment was stopped and soon recovery was completed. This satisfactory result is justifying the resort to the treatment, specially with animal of great pecuniary value.—(*Revue Veterinaire.*)

Treble Spleens in a Calf [*Prof. G. Petit*].—If double spleen are met now and then, case of triplicity are rare. Yet, it must be remembered that anatomo-pathologists of man have mentioned under the name of accessory spleens surnumerary small spleens, which may reach the number of twenty. The three spleens of this case were obtained from a five weeks old calf. They were perfectly independent of each other and one, larger than the others, had a notch, which seemed to indicate that it resulted from the union of two organs. In which case the number of spleens in that case may have been four instead of three.—(*Bullet. de la Soc. Cent.*)

UNEXPECTED AND FATAL COMPLICATION IN A CASE OF EQUINE PASTEURELLOSE [*Mr. Mounet*].—Called in consultation near a large percheron stallion of eight years, the author found a true case of Pasteurellose, for which he prescribed some little change in the treatment and a change of hygienic surroundings. At first the animal seemed to gain and improved. After a few days, however, changes for the worst manifested themselves. There was a relapse indicating troubles towards the lungs. A severe treatment was started, but with no satisfactory results as to the manifestations of the thorax, others came to be added, in the shape of colics. These kept up, increasing, and the animal died. Post-mortem: The region of the sheath is infiltrated with urine. The intestinal organs are almost free from any lesions. The parietal peritoneum is much inflammed and the abdominal cavity contains about two or three litres of cloudy and dark colored urine. The bladder is ruptured; very large; it must have been very distended before giving away. The rupture is transversal and measures 10 centimeters in length. It is situated at the inferior face. The liver is big and soft. Kidneys and spleen congested. Lungs show lesions of congestion. Heart is presenting nothing peculiar. The situation of the rupture of the bladder was such that urine was escaping readily from the penis while another portion of the renal secretion was poured into the abdomen.—(*Rvenue Gener. de Mede. Veter.*)

ENZOOTIE OF CATARACT AMONG HORSES [*Prof. C. Cuny*].—This was observed in a farm situated on a mountain, where the horses were kept in two stables, apart from each other by 50 meters. There never has been any sickness in the stock. In one stable there are four horses out of eight which have double cataract and one-fifth which has only keratitis. In the other stable only three horses are kept, and one has a unilateral cataract. In the first barn the first horse affected presented nothing wrong until he was observed to act queerly, hesitating in walking, knocking himself against walls and surrounding objects. Examined, he was found with two cataracts. The second horse was sixteen years old, he behaved like the first and his condition detected in the same manner. Several months after the third horse was taken, but he had cataract only in one eye. The fourth had keratitis and could yet see perfectly. His cristalline lens was still clear. Some time after the fifth horse observed also behaving in the same way, and when examined revealed a double cataract. In the other stable the only horse affected had unilateral

trouble. No cause could be attributed to this manifestation, except that all the horses were obliged to drink out of a kind of reservoir, in which the remains of the stables could run freely, and it was supposed that a peculiar auto-intoxication was the result of this dangerous hygienic arrangement. Better hygienic conditions were the only thing that seemed proper to prescribe.—(*Journ. de Zootechn.*)

RUPTURE OF SPLEEN [*Mr. Rouillier*].—A horse is walked slowly for an hour, he seems sick suddenly and is brought to the author, who notices the following condition: The animal is standing stiff on his four legs, he is covered with profuse perspiration, head carried low, facies anxious, mucous membranes pale, muscular tremblings at the soulder and the croup; frequently looks toward his flank. Temperature 39.7 degrees. Breathing short and accelerated. The horse has a weak and moaning wind. Respiratory murmur accelerated at auscultation. Borborygms in the abdomen. Pulse small, thready and difficult to take. No marks of external lesions. Internal hemorrhage is suspected. After half an hour of sickness the horse drops, struggles for a few minutes and dies. Autopsy: Abdominal cavity contains an enormous quantity of blood. Stomach, large and small intestines are normal. The spleen presents a rupture, cause of the sudden death. The serous coat is raised and separated from the tissue of the spleen. On the posterior border there is rupture measuring 15 or 20 centimeters in length. On that membrane, at a point corresponding to the left hypochondriac region, there is a large ecchymotic spot, and below it the tissue of the organ is torn and surrounded with blood clots. There was no anatomical lesions; no suppuration or atrophic or hypertrophic lesions.—(*Recueil de Medec. Veterin.*)

IT is estimated by competent authority that over 45 per cent. of the food consumption of the better classes in the United States consists of animal and dairy products.

THE Government of South Australia has appointed an assistant veterinary surgeon to Veterinarian Desmond. Dr. Desmond is now engaged in an investigation and scientific study of an illness commonly known there as "dry bible." This malady is reported as being very prevalent in South Australia and disastrous in its effects.

ARMY VETERINARY DEPARTMENT.

LET US HAVE AN ARMY VETERINARY BOARD AT FORT RILEY.

In the last issue of the REVIEW I attempted to explain the causes of the discontent and unrest that have been noticeable of late among the veterinarians of the army, and recommended such changes in the proposed Congressional legislation as seem most urgent to meet the worst features of our present professional position.

But while we are waiting for the betterment of our position by the legislation that we are seeking, we must do something ourselves to improve our status. It is evident that we have come to understand our rights in the army as never before, and as long as such feeling is kept within bounds, it is a healthy sign. However, I would not have any one of us forget that the flag under which we serve, giving us rights, imposes in turn duties upon us that can be variously interpreted according to our intellectual accomplishments. Aside from the duties demanded of us as specified in army regulations, orders and circulars, there are also those that have come to us by the "customs of the service." All these may be classed as "ordinary duties," for which—to use an American idiom—we are paid for. But whenever any class of men who form a branch of an institution, such as the army is, reaches a higher level of development and usefulness, there evolve duties for which no pay is given, such as private study, investigation and action, which benefit more directly the institution as a whole than the single individuals comprising it. Look into the development of any striving institution and we shall find that it rests upon the voluntary and unselfish labors of its members.

In our case we can materially aid the development of a veterinary service worthy of its name by our individual study of current literature bearing on our profession in the army and by contributions to such literature in periodicals of high standing; we can experiment with improved methods of veterinary practice in garrison and field service and perform even a certain amount of scientific research; we *must* look after our own affairs in the army and make such recommendations as seem necessary and

practicable of enactment by the proper authority; and we *should* assume the role of counselors to the War Department in matters pertaining to veterinary science and practice, and not leave the incentive to do so in strange hands, as is now the case.

Whether we are ripe for such advanced duties and the responsibilities that will go with them remains to be shown by our efforts. The old order of things has gradually been broken with, for it did not work that way and could not. Infusion of new blood has taken place and few old-timers remain on our roster, who were supposed to hold us down. Yet, we should not point the finger at the very few among us who are accused of having no interest in our mutual welfare; we cannot lick them into shape, nor should we play the role of moral reformers. Men choose the pursuit of happiness according to their own interpretation of the Clause in the Constitution—one will find it in frolic, the next in serious endeavor.

What I propose is that all those among us who have thrown in their lot with the army for good or evil, who think much of our rights and more of our duties, who still hope to see realized some day the establishment of an up-to-date veterinary organization in our army, and who are willing to work for it, combine to form a working unit for solving the problems that are now before us, or that are to come. Individual effort in this line is weak. It would certainly be unwise and impractical to start such work without a central soul. Without a chief veterinarian, or substitute for one, we would rather fritter away our time and effort; in fact, we would risk to have reports and recommendations go forth from our forty-two veterinarians that might be as diametrically opposed as night and day. Such individual attemps at self help would only produce a smile of derision in Washington, and it would be said of us as is now said of the Philippinos: *They are not ripe for self-government.* We have a nucleus for such a central body in our army committee at Fort Riley, and need not search for another place or persons. I believe the Riley veterinarians have done good service for our cause by intelligent attention to duties that were new, and according to disinterested officers they have been successful. There always will be a greater number of veterinarians at Riley than at any other post; it has been made the centre of instruction in all that pertains to the army horse; it is the seat of our veterinary examiner, and will have in not distant time an army veterinary school. It is, therefore, near to ask our colleagues at Riley to

extend their sphere of usefulness and to constitute for us a "Veterinary Board," to whom we could refer our individual work for approval and transmission to the proper authority. I am confident that the veterinarians stationed there are capable to constitute such a board and to perform the work indicated, to which all others, stationed elsewhere, should voluntarily contribute each one according to his choice and accomplishment.

Some, doubtless, may pronounce such a plan as Utopian. Let me briefly refer them to the tremendous progress brought about in our profession by our various veterinary associations, that depend on nothing but the free will and enthusiastic support of its members. Some twenty-five years ago we hardly had a veterinary profession in America; we have one now that is keen and aggressive in its just endeavors. But associations can only have periodical sessions, whereas we in the army need more permanent deliberations. The results of the labors of such a Veterinary Board would soon tell. If sensible, broad-minded and far-sighted, not a nagging nuisance or imposition upon the army, its efforts will be readily appreciated by our military authorities and would naturally and without strain lead up to the formation of an official veterinary organization, and this much sooner than by mere attempts at periodical legislation.

We are on the upper grade. The foundation has been laid, construction has begun, and it is our duty to keep on building up. What work, then, can we lay out for our proposed Veterinary Board at Fort Riley?

MEASURES RECOMMENDED FOR CONSIDERATION AND ACTION.

1. A bill entitled: "To provide for raising a volunteer army of the United States in time of actual or threatened war," was introduced into Congress February 18, 1907, by Senator Warren (§ 8574). It is a comprehensive measure, outlining plans for the organization and mobilization of the proposed army. It provides for the enlargement of every staff department, of the line and of all possible commands and units in minute detail. There is a mighty army on paper, putting every man in his place. No mention, however, is made of the army horse, be it than in the terse provision: "Remount and horse depots," from which alone no mobilization of horses for an army on war footing can come. No mention, further, is made of a "veterinary service," nor is anywhere, in all the lengthy 20 sections of the bill, the "veterinarian" to be found. This omission of a needed branch of an

army on war footing cannot possibly be explained by oversight, for the bill bears proof everywhere of most careful work and commendable foresight. Moreover, some of us know that a little over two years, when this bill was first worked out, something resembling an Army Veterinary Department had been agreed upon. The present status of the veterinarians was not changed, but graded pay and sufficient numbers had been provided for, about as follows:

For the Line—One assistant veterinarian (second lieutenant's pay) for each squadron of cavalry and battery of artillery; one regimental veterinarian (first lieutenant's pay) for each regiment of cavalry and field artillery; one inspecting veterinarian (captain's pay) for each cavalry and artillery division; one chief veterinarian (major's pay) for each army corps. For the mounted engineers and signal companies and other mounted commands one assistant veterinarian for every 300 horses.

For the Remount Division (under the Quartermaster General)—One chief veterinarian (lieutenant colonel's pay), three veterinary inspectors (major's pay) at depots, such additional assistant veterinarians, with pay of captain or lieutenant, as may be necessary at depots or purchasing stations.

Speculation as to the reason or cause for the omission of this entire provision is interesting but fruitless. We simply had nobody in Washington to look after the horse and the veterinarian. It is certainly our duty to spread some enlightenment on these points, and have the above section re-enacted into the bill at the next session of Congress. It seems incredible that any intelligent military man can persuade himself into the notion that a modern war can be entered into and brought to a successful termination without careful provision for the acquisition of suitable army horses and for keeping them in health, which means an elaborate remount service and an organized veterinary service.

2. Another new bill, providing for a "Remount Division" of the Quartermaster's Department, will undoubtedly be introduced into next Congress, as suggested by Brigadier General Alshire, Quartermaster General, in a paper read before the General Staff some time last winter. This matter has been agitated for many years, it is ripe for legislation and will surely be passed, as horse breeders are interested in the subject. The paper was reprinted in the *Army and Navy Register* of March 9, 1907, and should invite the careful study of every army veterinarian. As far as the veterinarians, that are to be a part of the scheme, are

concerned, they were only broadly mentioned, and it is recommended that one chief veterinarian at the Washington Remount Office and one to two veterinarians at the Remount Depots, are to be provided for. No suggestion is made about the rank or pay and allowances that these veterinarians are to receive, evidently leaving this matter to other authorities to decide. A golden opportunity is offered here to do the right thing at the right time. I recommend that those who are not familiar with the system and methods of Remount depots, study the report entitled: " Remount Systems Abroad," published as No. XXXV., War Department, Military Information Division, April, 1902. As experts in this matter, we should at once advise the proper authorities as to the necessary provisions to be made for veterinary service at these depots. All European armies have high-ranking veterinary officers connected with the Remount service commensurate with the responsible duties, and here we can drive in a timely wedge into our hampered usefulness.

3. The *Army Register* should contain our names and records. We are now by law entitled to a place in this annual publication, and if there is any doubt, reference may be made to the enumeration of honor graduates of private military schools which have no connection with the army and yet occupy a whole page. The veterinarian is also omitted from the organization table, merely from old custom, and we should be taken up in a special rubric at the proper place. If we all send our names and records to Riley to be compiled there and forwarded, it will dispatch this matter.

4. The "Army Regulations," as regards the status, duties, etc., of veterinarians, call for our earnest thought and action. The paragraphs have been left as they were twenty-five years ago, as far as the spirit is concerned. We can help ourselves personally and the veterinary service immensely if this matter is worked out by us and submitted for approval at the proper place.

5. Our Riley veterinarians should experiment with veterinary field equipments, proper pack saddles for same, etc. The ancient " Veterinary Panier," and the new one, are masterpieces of green-table pedantry and poor workmanship. The leaking tin cans! No more need be said to have every veterinarian remember his misery in the camp. A great field for useful work opens up here. It is *our* duty to start this work and keep it up. Surely, it would be appreciated by the military authorities also. Let us all butt in and contribute our share to help the Riley colleagues

along. We all have made our individual experience in this line, and many of us have constructed our outfits according to individual taste. A pack-horse is an absolute necessity, led by a panier. I shall make a report to Riley on this matter as soon as I can spare the time. Please contribute all your share.

The above merely touches the subjects for our first consideration and action. Many more wait for us to be taken up, as soon as our friends at Fort Riley feel themselves ready to commence this work. It will bear fruit.

OLOF SCHWARZKOPF.

Camp Statsenburg, P. I., August 19, 1907.

STATUS FOR THE ARMY VETERINARIAN.

To secure the above desideratum, it becomes necessary, as follows:

A congressional delegation to consult the General Staff of the War Department, at Washington. Members of Congress from different states should be pledged to exert influence in behalf of the passage of an act, insuring at least a grade, which will place the United States Army Veterinarians on an equal footing in all respects with commissioned officers.

Those in the service to-day, under present regulations, are enjoined from any such solicitous measures. Can the American Veterinary Medical Association accomplish it? Their legislative committee is equal to the task. One member from the District of Columbia, New Jersey, Ohio, Minnesota, and one from Colorado should be sufficient.

Congressmen from these respective states, selected by the legislative committee, could handle the situation.

A legislative committee at Fort Riley, consisting of Army colleagues, has been tried, but their hands found tied.

L. E. WILLYOUNG, *First Field Artillery.*

RAILROAD DISEASE OF CATTLE.—"I am more than grateful to Dr. J. P. Oleary for even a name for the disease which he describes in his translation as 'Railroad Disease.' All dealers in this locality who ship cattle any distance suffer a loss from this malady, but never before have I seen it named or described."—(*J. F. De Vine, D. V. S., Goshen, N. Y.*)

We are just in receipt of the announcement from Secretary Blair, of the annual meeting of the VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY, and take occasion to urge the veterinarians of Greater New York to turn out as strong as possible, as, in addition to the customary attractive program, this is the occasion of the election of officers for the coming year.

CORRESPONDENCE.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

BATON ROUGE, LA., November 15, 1907.

Editors, American Veterinary Review:

DEAR SIRS:—The International Congress on Tuberculosis will be held in Washington, D. C., September 21-October 12, 1908.

From a preliminary announcement received from Dr. John S. Fulton, Secretary-General of the Congress, Section VII., over which Dr. Leonard Pearson, of Philadelphia, is to preside, is one which should be full of interest to all members of the veterinary profession, as its work will deal with "Tuberculosis in Animals in its Relation to Man."

Many of us are more or less familiar with the important deliberations of former congresses of a similar character, and more particularly the section which has to do with subjects relating to comparative medicine. It may be remembered that it was at the London Congress, in 1901, Professor Koch startled the medical and veterinary medical sanitary world by his statement relative to his belief in the duality of the bacillus tuberculosis, and at which McFadyean, of London, and Ravenel, of Philadelphia, and others took issue with him. Still, if this sweeping assertion of the great German has accomplished nothing more, it has certainly been the means of stimulating more research to be made to find out the truth, and, in consequence, has resulted in more accurate information being gained and disseminated regarding tuberculosis than possibly anything else could have done.

The Washington Congress will bring together a large number of the world's most noted medical and comparative medical savants, and the deliberations of these men will be nothing short of a most valuable and instructive intellectual feast to all who avail themselves of the opportunity to attend.

An official invitation has been extended the American Veterinary Medical Association to be represented. In a recent communication from the Secretary-General to the writer there occurs the following: "It is the hope of the committee that the American Veterinary Medical Association will be officially represented

at the Congress, and that a great many members of the association will be active members of the Congress."

It seems to me that here is an opportunity that we, apart from the official representation, as an association and as a profession, cannot afford to miss. This noble work in the great cause of humanity, in addition to its economic importance, is *our* work as much as it is that of the medical profession. In fact, I might say, *more so,* because it is the province of the veterinary profession to deal with the basal factor, so to speak, viz.: the tuberculous animal, whose infected products carry with them so much misery and death to the human family.

It may be thought rather early to draw attention to this Congress. However, my motive in doing so is to emphasize the importance of it, and that the interval may be profitably spent in preparation, in order that the profession may be able to show, when the time comes, not only to the Congress, but to the world, the part it plays, and the deep interest it takes in the relief of human suffering and death, which is occasioned by the destructive influence of the "great white plague."

Coming as it does almost immediately after our next annual meeting in Philadelphia, it is to be hoped that many members of the association may be able to make it convenient to attend the Congress and take an active part in the work, which they have been officially invited to do. And it is further to be hoped, that as many as possible of the profession at large will become active members of the Congress, avail themselves of this splendid opportunity to mix with representative international sanitarians, and benefit by the proceedings as a whole. It is an opportunity that the veterinary profession of America should not miss. Nay, cannot afford to miss.

W. H. DALRYMPLE,
President, A. V. M. A.

INTERPRETATION OF THE PROVISIONS OF MICHIGAN'S NEW LAW BY THE ATTORNEY-GENERAL.

LANSING, October 30, 1907.

Dr. L. L. Conkey, President Grand Rapids Veterinary College, Grand Rapids, Mich.:

DEAR SIR:—I am in receipt of your communication of the 22d instant, in which you state that the Ontario Veterinary Col-

lege, commencing with the present fall term, prescribes a course of three years. However, this only applies to students entering the college this fall, and those who entered in 1906 and attended during the 1906-1907 session will be graduated next March, after having attended the college but two years. You ask whether these students will be entitled to registration in this State upon presentation of their diplomas from this institution.

You also state that it appears from the catalouge of this college that the annual sessions commence October 16 and close March 30 following, thus making the session each year only five and one-half months' duration, and ask whether the graduates of this college would be entitled to registration under the laws of this State.

For answer thereto, I would say, that section 3 of Act 244, Public Acts of 1907, regulating the practice of veterinary medicine and surgery in this State, provide that

> "It shall be the duty of the said board from time to time, during each year, to provide and furnish to its secretary a list of the regular colleges having a curriculum of at least three years and of at least three sessions of six months each, having the authority to confer the degree of doctor of veterinary medicine, doctor of veterinary science, or doctor of comparative medicine or veterinary surgeon."

Section 5 of the act provides as follows:

> "From and after January first, nineteen hundred and eight, it shall be unlawful for any person to practice or attempt to practice veterinary medicine or surgery in any of its various branches, unless he shall be duly registered by the State Veterinary Board. No person shall be registered by the State Veterinary Board as a veterinarian or veterinary surgeon until he shall have furnished satisfactory proof of his identity, and that he is the lawful and regular possessor of a diploma from a regular veterinary college or veterinary department of a State institution of learning or college of medicine having a curriculum of at least three sessions of six months each, and requiring personal attendance of its pupils, and that said diploma was issued by such school or college direct to him."

From these provisions of the act it is clear that unless a veterinary college has a prescribed course of at least three years,

with sessions of not less than six months in each year, it is not entitled to be listed as a regular college by the State Veterinary Board. If, therefore, the Ontario Veterinary College prescribes sessions of but five and one-half months duration each year, it should not be listed by the State Veterinary Board, and its graduates would not be entitled to registration under the laws of this State.

If this college has a prescribed course of at least three years, with sessions of at least six months in each year and requires personal attendance of its pupils, it is entitled to be listed with the State Veterinary Board, under the provisions of section 3 above referred to. It does not, however, follow that the class of students who will be graduated therefrom next March, after having attended the college but two years, will be entitled to registration upon presentation of their diplomas.

It is my opinion that it is contemplated by this act not only that the college shall have a prescribed course of at least three years, with sessions of at least six months each year, but that the applicants for registration shall have completed the prescribed course of three years in the institution.

Respectfully yours,
(Signed) JNO. E. BIRD,
Attorney General.

"ESSAYS ON HORSE SUBJECTS" is the title of a neat little volume of Dr. F. C. Grenside, of New York City. For a number of years this eminent veterinarian and horseman has been contributing some splendid articles occupying the borderland between the provinces of the veterinarian and horseman. Many of these were published in the REVIEW, some in the *Breeders' Gazette*, and others were read before veterinary association meetings. Being a recognized authority on these subjects, the profession will gratefully welcome this neat brochure, while the student of the horse will find great benefit from its perusal.

PRACTICE in the eastern cities has been very quiet during the early autumn.

W. W. CURRY, D. V. S. (A. V. C., '87), Hackensack, N. J., was elected Coroner of Bergen County, New Jersey, at the recent election.

DR. M. J. JONES, JR. (O. V. C., '05), Blanchester, Ohio, was married November 23, to Miss Marjorie Jackson, of Cincinnati.

BIBLIOGRAPHY.

ESSENTIALS OF MILK HYGIENE. A practical treatise on dairy and milk inspection and on the hygienic production and handling of milk, for students of dairying and sanitarians. By C. O. Jensen, Professor in the Royal Veterinary and Agricultural College of Copenhagen, Denmark. Translated and amplified by Leonard Pearson, Dean of the Veterinary Faculty of the University of Pennsylvania, State Veterinarian of Pennsylvania, Member of the Advisory Board of the State Department of Health and Member of the Board of Health of Philadelphia. Illustrated. Philadelphia and London: J. B. Lippincott & Co., Publishers, 1907. Pages 275, $2.

This is an indispensable book to the veterinarian who would change a senseless system of testing milk when offered for sale to one of a rational and safe supervision over the source of supply—a supervision over the production and handling of milk, including regular veterinary expert examinations of all dairy cattle and the enforcement of a compliance with hygienic and sanitary regulations. The bacteriologic and microscopic examinations of milk made in public health laboratories demonstrates and emphasizes the necessity for beginning the inspection with the cow herself and the conditions under which she is kept, instead of with the product when offered for sale.

The whole field of milk hygiene is covered in a concise and comprehensive, if not exhaustive, manner. The data of the work is essentially the substance of lectures delivered by Professor Jensen in the Veterinary and Agricultural College of Copenhagen, and was originally published in the Danish and German languages simultaneously. For the English edition, now fresh from the press of J. B. Lippincott & Co., the profession is indebted to Professor Pearson, not only for its translation, but for its amplification and adaptation to American use.

Added to the work proper are six appendices containing data on the milk supply of Copenhagen, German instructions for producing nursery milk, a score card for dairy farms, the report of the Royal Commission on Tuberculosis, the plan of the Milk Commission of Philadelphia and of the Milk Commission of Essex County, New Jersey.

On account of its historic value, the agreement of the Medical Milk Commission of Essex County, New Jersey, for the production of "certified milk," dated May 9, 1893, which was the first provision made for "certified milk" in America, is reproduced in full.

"THE ESSENTIALS OF MILK HYGIENE" is a practical and valuable contribution to our science and literature. An intelligent application of its teachings would greatly benefit agricultural and commercial interests and produce marvelous results in safeguarding human life from infection and from unnecessary disease, suffering and even death.

The REVIEW therefore commends this work to the profession, feeling confident that it will not disappoint either the critical or the practical reader. W. H. L.

A MANUAL OF VETERINARY PHYSIOLOGY. By Colonel F. Smith, C. B., C. M. G., Army Veterinary Staff, Fellow of the Royal College of Veterinary Surgeons, Fellow of the Institute of Chemistry. Author of a "Manual of Veterinary Hygiene," etc. Third edition. Completely revised and in parts rewritten. Illustrated. New York: William R. Jenkins Company, 1907. Pages 715.

This is an excellent work. Its chief advantage, considered from a veterinary point of view, is that the horse, and not man, is taken as the type. The ox, sheep and pig, however, are dealt with whenever their special physiology requires it. It may therefore be considered essentially an equine rather than a veterinary or comparative physiology.

The work, although not exhaustive, is thorough and comprehensive, and is an acceptable contribution to veterinary science and literature.

The requirements of the student and practitioner have not been lost sight of, and every opportunity has been taken by the author to point out the application and utility of physiological knowledge in the treatment of pathological conditions. To several chapters a special appendix on pathology is added, the one connected with the chapter on digestion is of especial merit, containing much valuable data of interest to the equine practitioner. W. H. L.

THE report comes from the St. Joseph Veterinary College, St. Joseph, Mo., of the enrollment of seventy-six students in this new school.

OBITUARY.

WILLIAM C. FERGUSON, D. V. S.

In the death of William C. Ferguson, D. V. S., Paterson, N. J., which occurred October 12, 1907, a worthy and well qualified veterinary practitioner, aged thirty-four years, was suddenly removed from a succesful and promising career of usefulness. He suffered from an organic affection of the heart, but continued in active practice until a few days before his decease. A difficult surgical operation which he had performed is believed to have superinduced and hastened his death.

Dr. Ferguson was graduated from the American Veterinary College in 1893 and located at Paterson, N. J. He was elected City Veterinarian of that municipality in 1900 and served one term in a creditable and satisfactory manner.

He was a member of the Veterinary Medical Association of New Jersey, and had just received from Secretary Lyman official notice of his election in September, at Kansas City, Mo., to membership in the American Veterinary Medical Association.

Among the many large and beautiful floral pieces sent to his funeral was a simple galax wreath from the Veterinary Medical Association of New Jersey, expressive of the esteem and respect in which he was held by his fellow members of the profession.

W. H. L.

WILLIAM C. BRETHERTON, D. V. S.

Just as our forms are about to close, word has reached the REVIEW office of the death of Dr. William C. Bretherton, he having succumbed to a complication of diseases at 9 p. m., November 24, 1907, at the age of seventy years. Dr. Bretherton came to this country from England in 1857 with his father, who was a graduate of the Royal College of Veterinary Surgeons (L.), under whom he had studied, and at once began practice in New York City, where he has continued to practice up to the time of his death. In 1883 he graduated from the American Veterinary College, in New York, receiving the degree of D. V. S., of which he was justly proud.

The Doctor is survived by a wife and a son, George C. Bretherton, D. V. S.

R. W. E.

SOCIETY MEETINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order by Vice-President Amos at 2.35 p. m., at Mankato, Minn.

Dr. Amos: Members of the Veterinary Association:—As Vice-President of this association, I have been called upon to occupy the chair on account of the absence of our President, Dr. McGillivray, who has been unexpectedly called away on account of death in the family, and last night telephoned me to be sure and be here. We have with us Dr. Andrews, Mayor of the City of Mankato, and I take pleasure in introducing Dr. Andrews, who will address you for a few minutes.

Dr. Andrews: Mr. President:—It is surely a pleasure for me to meet these gentlemen here to-day, and to express to you the most hearty welcome. It is a double pleasure, because first, as the chief executive of this city, we are glad to welcome to our midst conventions of this character, conventions, indeed, of citizens, whatever their vocation or occupation. We feel that we have a pretty city to show them and some advantages that the convention may have in meeting here. I say it is a double pleasure, first, for the reason that I have stated, and second, because as I meet you gentlemen I meet those of an allied profession, of a profession akin to my own, and in my own profession I take great pleasure, and always feel that the title of "Doctor" is an honorable one. I think a great deal of veterinary practice these days, but when I began the practice of medicine, thirty years ago, I must say that the practice of veterinary surgery in these Western States did not have the standing in the community that it does now, for the reason, and the only reason, that your ranks were filled up with men who were not qualified to practice, and I used then to say: "Why don't the veterinary surgeon qualify himself better when his opportunities are so great?" With us it is not easy to get a post-mortem examination; with us it is not always easy to get dissecting material; but with the veterinary surgeon all this can be made—practically all—and dissection of subject as well as practically always he can to a

certain extent experiment, not upon the animals that he has treated, but upon the lower animals. There is a better opportunity for that perhaps than the physician has. I have never practiced veterinary surgery or practiced medicine in your line, perhaps I may say at all, for I believe in a man's sticking to his business, sticking to his trade and profession. I have frequently been consulted as to what to do for this or that animal, and under certain circumstances have given advice, circumstances when no veterinarian could be had. I was called to tie some divided arteries in a horse which had been cut by a mowing machine, because I could do that as well as a veterinarian, but it is not my profession, and had the veterinarian been at home at that time, I should not have done it. I did it to accommodate the man more than anything else. Our professions run along side by side, and after all, when it comes to the physiology and anatomy, there is a great similarity between the horse and man, and the veterinary profession will know a great deal about the human system and the physician will know a great deal about the dumb beasts, the cow and other animals. Gentlemen, I am not here to given you anything like a scientific lecture. I could not do it if I desired, and would not if I desired. There are able men amongst you who will see to that. I come to welcome you, and we will give you the freedom of the city until twelve o'clock every night, and during your sojourn here, if there is any favor that the city can confer upon you, or any special privileges, and Dr. Dell will let me know, we will only be too glad to favor you. I again welcome you, and hope you may have a successful and profitable meeting to-day. (Applause.)

Dr. Amos: On behalf of the State Veterinary Medical Association, I would call for a few remarks upon the subject from Dr. Reynolds.

Dr. Reynolds: Mr. President and Mayor of Mankato:—I assure you that it gives me pleasure to reply as best I can to this very courteous and very friendly address of welcome which we have had from the Mayor, and am sure I voice the sentiment of this association when I say that we appreciate most highly the very courteous words that come from the Mayor in his official capacity; but much more we appreciate the kind words that come from him as a medical man. We are here this afternoon and to-morrow discussing tuberculosis, glanders, actinomycosis and

milk, and various questions that have to do with both medicine, things in which we have a mutual interest, and we can readily see that Dr. Andrews does not think of the veterinarians of to-day as merely "firers of spavins" and merely routine practitioners, but men who see broader things and take a wider and deeper interest in things that pertain to social and political things, and welfare in general. Now, some of the members of this association I know very well are very much interested in having a closer acquaintance between the medical men and veterinarians of this State, closer relations in association work and in various other ways. Personally I would like very much indeed if we could have a paper from a physician at every meeting of our association. I would like to very much, and feel it an honor, if at every meeting of the State Medical Society of Minnesota there should be a paper from the veterinary profession. You all see the advantages of it, the desirability of that closer acquaintance and closer mutual study of those things in which we are both interested. It seems to me the day when there will be a chair of veterinary medicine in medical colleges is not far distant. I hope the day will not be far away when we will have such a chair in the University—surely the next thing to do is something about that. We appreciate very deeply Dr. Andrews' kind words and appreciate them both as a physician and as a citizen.

The next on the programme was the roll-call, which showed an attendance of thirty-one members.

The minutes of the last meeting were read and approved.

Dr. Amos: The next on the programme is the President's address. Now, I assure you that as the President is not here I am filling his chair, as I was notified last night that on account of death it was impossible for him to be here, but at the same time, he did not send his address over the telephone, and I am not going to take up much of your time to give you an address. I am glad to see so many of you here. We have a great deal of work ahead of us, and it will take all afternoon to get through with it. I did not come prepared to make an address, and if we had Dr. Cook, the orator, or his substitute, Dr. Leech, in the chair, we might have an address.

We will now proceed to the committees. The first report is the Committee on Colleges, Dr. Leech.

Dr. Leech: I did not even know I was on this committee until Dr. Mack notified me about two weeks ago that, inasmuch

as Dr. Ward was leaving the State, I was appointed. Not knowing I was on the committee I have not given it much attention, yet kept in touch as closely as could be expected from what information I could glean from work being done. I do not know of any radical work along the lines of the different colleges that we have on our list as regulation colleges. There are two colleges that have been two-year schools and are now practically three. One taken over by the government and accepted in the Dominion as a three-year school and run by the government.

The Grand Rapids School, which has always been a two-year school, is now sending out a curriculum which is superior if not equal to any. The Western School is now a three-year school. On account of the agitation created by the veterinary profession, all those attending nearly all the veterinary schools recognize that they must meet the requirements. It gives me pleasure to note that those which have made the requirements are continually in the advance.

The Manhattan School at Kansas has been voted $35,000 to help their school. Their intention is to build a new building and improve their school. Colorado has a provision of $30,000 in its agricultural school, and they will increase the veterinary college. Pennsylvania has been given everything asked for and now have a sufficient amount on hand, so they are absolutely independent, so far as endowment from the State is concerned. And the greatest of all, the University of Illinois, is now in a position to receive the $250,000 voted to them by the Stock Yards Company, and the State of Illinois has voted $30,000 for the next five years, but that is to build and equip the school, and their intention is, if necessary, to go on and make it a school fit to be called first class in every sense of the word.

I do not know of anything more, except that one of our schools has received the recognition which is unusual to receive from that source. The Veterinary College at Chicago gave a special course along the lines of meat inspection, and about 50 Canadian veterinarians came over here and took that course, and were graduated in that course, Dr. Rutherford being in attendance, and I believe the Canadian authorities made it so interesting that every man who came to Chicago to take that course was granted $100 to help defray the expenses.

Dr. Amos: We will proceed to the next topic—infectious diseases—by Dr. McDonald.

GLANDERS.

Number of horses inspected	918
Number killed on inspection	52
Number tested on inspection	544
Reacted when tested	210
Killed after testing	130
Quarantined	75
Reinspected	41
Killed on reinspection	19
Total killed	201

TUBERCULOSIS.

During the past six months there have been 12,170 cattle tested, of which 805 were condemned.

There have also been tested by the State Live Stock Sanitary Board Inspector at South St. Paul 324 foreign cattle, of which 19 were condemned.

RABIES.

Since the first of the year rabies seems to be on the increase, it having been reported in 13 different counties.

Dr. Amos: You have heard the report of Dr. McDonald on Infectious Diseases. Are there any remarks or questions to ask?

Dr. Cotton: There were 12,170 cattle tested in this State during the last six months. I think this is more work with tuberculosis than in any other State in the Union.

Dr. Gould: What is the proportion of pure bred cattle of that number?

Dr. McDonald: I do not know, but in one herd of 53 I condemned 52.

Dr. Reynolds: While I cannot answer that question in figures, the number of pure bred cattle being tested in the State is increasing very rapidly, as compared with five or even three years ago. If I were guessing at it I would say about one to five.

Dr. McDonald: There would not be over one to three.

Dr. Leech: I would like to ask Dr. McDonald this question: Of those 300 head at the stockyards, were they mostly beef cattle, dairy cattle, or fancy cattle or feeders?

Dr. McDonald: They were mostly dairy cattle.

Dr. Leech: Were they tested on account of knowledge of the disease?

Dr. McDonald: A great many of them were tested on account of being shipped into the State for dairymen.

Dr. Amos: Are there any other remarks on this paper by Dr. McDonald? If not, we will proceed to the Committee on Legislation and Emperics, by Dr. Cotton.

Dr. Cotton: I have not prepared any report for this committee. I think practically all the members have a knowledge of what has been accomplished by the last Legislature. I can say that we have succeeded in passing the best veterinary practice act of any State in the Union. I do not know of any one part of that act which I would like to see rescinded. Of course there are some clauses that had to be introduced applying only temporarily, which were, perhaps, undesirable, but you will remember that at the State meeting last winter we explained the reason why we undertook to get any legislation whatever. It was the understanding that we would not undertake to change our practice act, but Dr. Reynolds was notified by a certain attorney in St. Paul that he was going to introduce a bill which was in favor of one individual quack; in order to register him, it would mean we would have to let down the bars and register all the quacks who failed to qualify under the old law. It was concluded that we would either have to fight that or get a new bill. Immediately four or five other representatives got busy who had constituents they wanted to register. You can imagine what the result was. We were met with numerous bills and we were in hot water continually. Finally, we saw that the only thing to do was to "get together" and make a few trades, which we did. These trades resulted in the registration, as I understand, of two men who were, as they claimed by affidavits, eligible under the law of 1893, but had failed to do so on account of sickness, and, I understand, will also allow the registration of another man, who has spent one year at Toronto. That, I think, was perhaps the best concession we could make, because we have at last got a practice act we can be proud of. But I want to sound a note of warning, if we have to do this every session of the Legislature, *i. e.,* make a concession to three or four unqualified practitioners, we might as well have no law at all. We will have to watch this very closely at each session, and try to keep the law and not interfere with it, and it will keep us busy preventing people from starting laws for certain individuals. I think we were justified in doing what we did, and hope the association will look at it in the same light.

As chairman of the committee, I was there a good deal, not as much, perhaps, as I should have been, but we could not communicate with every member of this association. When we acted we had to act quickly. I think this association owes Dr. Reynolds a vote of thanks. He certainly was faithful. There was not a day went past that he was not either calling somebody over the phone or patting them on the back, and we owe him a vote of thanks for the work he did in this matter.

Dr. Amos: You have heard the report of the committee. Are there any remarks?

Dr. J. N. Gould: While I live a long way from the cities, I keep in touch with the work through Dr. Reynolds and other members of the committee, and I feel that the committee should have some encouragement concerning this. Our talk is all right, and if the association sees fit we ought to have something on the books commending the work of the committee. I think, personally, on the whole, it was good, and is is something that we, of course, were hoping for in the future. As I remember the first bill we had was rather a lame affair, and it was the result of a considerable amount of hard work on the part of the committee who had charge of it. A little later on we had something a little better, and each time we lost ground in allowing men in that were not desirable, but we gained ground all the time. I think the last step taken is a decided gain. I believe if we all feel right about it and work together we can keep it closed. If we work together for the next four or five Legislatures, after that time we will have little trouble, as the profession will be strong enough in the State to tide us over anything of that kind. I think, for the very efficient work done, we ought to offer a vote of thanks, and I move that we extend a vote of thanks to the Legislative Committee for the good work done, and particularly to Dr. Reynolds.

Dr. Leech: Coming as this does from one who was opposed to opening up that bill, I myself having urged it, and being rather jubilant over the results, I want to second that motion.

Upon a vote being taken, the motion was unanimously carried.

Dr. Amos: Any other remarks?

Dr. Reynolds: I want to say, gentlemen, that I have had the best pay and the greatest satisfaction this afternoon here that I have ever had in my life for anything I have ever attempted to do for my profession. I appreciate this more than I can tell.

While I am on my feet I want to make a couple of suggestions as a result of our experience last winter, and I think it will prove encouraging to you in matter of our political power. To illustrate the point, they opened one amendment and that was given in the letter sent out by Senator S. We could not compromise on any sort of a basis. We told him so, courteously, and tried to explain that he did not understand what he proposed, and tried to show him what it would result in, but he would not listen to reason. Dr. Ward was with us. He said, " then perhaps you are going to oppose my amendment?" He said, " Well, I suppose it is fight, and we will have to fight." We said nothing, but sent out a circular letter and a storm came in on the Legislature so suddenly and so vigorously from all over the State, that in about three days he concluded that he did not want to fight, and permitted me to write an amendment and word it exactly as I pleased, as a substitute for his. That was the third proviso of section 5 of the new bill. When it goes that way, when you all act together promptly, we have more influence than we ever supposed; more than I had supposed.

There was one other point. I want to urge that members of this association take a reasonably active part in your local politics. There was one Senator who was pulled two ways. He had a graduate member of this association, one of our old standbys, who was faithfully favoring our bill and favoring our amendments. He had a non-graduate in another portion of his county who wanted the amendment, and wanted him to oppose our bill. The non-graduate was an active man in politics and the Senator was a little bit afraid, and we failed to ge that man's support, although the bill was approved by the graduate and opposed by the non-graduate. The non-graduate took a rather active part in his local politics. The graduate did not. There is quite a moral in that suggestion.

Dr. J. N. Gould: I think Dr. Reynolds has quite a point there. There is no question about it. I know perhaps every member of the association in general practice knows that in a general way you have to handle some men, you might say, with gloves. If he stirs them up too much and gets into disfavor he does harm. It is so, a man who takes lots of interest may do harm, but another man, who does not take an active part will not do any harm. I do not believe that the veterinarians realize the power they can be if they take an active interest, to show the members of the Legislature that they do take an active interest. If a man

shows his senator or representative what part he is taking along the line of veterinary legislation, and shows him that it is going to do thus and so, the senator will pay a lot of attention to him, because he is sure of stirring up a hornet's nest. I realize that the man who sits back and does not say anything, does not have much influence with the senator. The senator knows he can smooth it over with him and not cause any trouble. The members of the Legislature are pretty shrewd in figuring that out. It is not always a man's ability as a veterinarian or his good standing that leads to political power or political influence. It is the activity that he puts into the political situation of that town.

Dr. Cotton: I cannot agree with some of the statements made by the two former speakers. I agree with Dr. Reynolds that we should take an interest in politics. I do not believe, however, that a professional man has a right to mix in politics. He must necessarily take one side or the other and is bound to make political enemies, and I say a professional man wants to keep out of politics. He can take an interest, but to become an active fighter in politics is poor advice to give our fellow members. I think it militates against professional success.

Dr. Gould: I think, perhaps, Dr. Cotton thinks that Dr. Reynolds or I meant to leave our professional work. I did not mean to stir up a lot of strife, but a man can take an interest in politics and be on one side or the other, and take a good liberal interest in it. I do not believe a man is worth much unless he takes one side of the fence or the other. Every man on the opposite side is respected.

Dr. Cotton: I think, perhaps, I misunderstood these men. I say that we all ought to take an interest in the welfare of our community and an interest in politics to a certain extent, but for a man to get so interested in politics that he is necessarily going to neglect his professional duties is not right. You can look at the history of our medical men in the cities, especially those who have gone into politics. It has eventually hurt their practice. This is history. Do not misunderstand me, that I say a man ought to sit on the fence and not be on either side, but do not advise the young veterinarian to go into politics for political power and gain, for it hurts him from a professional point and financially. I think history will bear me out.

Dr Leech: I think Dr. Cotton is right on that question. I would not advocate the veterinarian to go into politics. If you are going to be in the profession keep out of politics. It is my

advice to a young or an old man, but I want to say to you that there are more ways than one in stepping out into the open field, and no man can fail to have an influence with men who are in position to have political influence, and you can use their influence with those men. That is the main thing in politics. Stand in the right place and you will get out successfully.

Dr. Amos: A motion was made of extending a vote of thanks and I take pleasure in extending that vote of thanks to that committee at the present time, and particularly to Dr. Reynolds.

The next is the bacteriological report, by Dr. Beebe.

Dr. Beebe: I think the most rapid stride made in bacteriology in the past few years is along the line of serum theraphy and vaccination. At the present time we know the cause of a large number of infectious diseases, but do not know the treatment. We have several vaccines we use, and a great many disesase that we can give serum treatment. In the past two or three years an Eglishman by the name of Wright has been working along a line that may be beneficial to the veterinarian in a few years, although not perfected enough yet to be applicable. This is known as apsonin treatment. It is used for the treatment of a large number of infectious diseases of man, particularly those of chronic nature. For instance, they have used it in the treatment of chronic abscesses, and perhaps in a few years we will be able to use it in the treatment of a fistulous withers, etc. This treatment is merely a vaccine. The way they get vaccines is to take cultures from abscesses or whatever it may be in pure cultures. Draw some of the blood from the subject which they intend to produce the vaccine for and take the leucocytes out of the blood and take some of the organisms and mix with leucocytes. The leucocytes will take up a certain number of bacteria, and then the leucocytes are put on a slide and stained. The number of bacteria that each leucocyte shows is counted. The vaccine is then prepared from the culture by taking a small amount and heating it and injecting it into the diseased person. In about a week or ten days make a second count of the number of bacteria that the leucocytes will take up and they find the number increases by using this vaccine, and regulate further treatment by this count as an index. They have treated several of the chronic diseases in this way. The chances are that in a few years we may be able to use it in veterinary work. At present it is too complicated to be practical.

Recently an article appeared in the *Journal of Comparative Pathology and Therapeutics* on the form of chronic diarrhœa in cattle. There has been found on the mucosa of intestines, by several men, a large number of organisms that resemble tubercle bacillus, and the men who have worked on this disease are men of very good reputation. Although this organism has particular pathogenesis for small animals, such as guinea pigs, rabbits, etc., they seem to think it is the cause of this disease. I do not know that this disease has ever been found in this country, but it seems to be prevalent in Europe.

There is also some work done along the line of glutination in glanders. Drs. Moore and Butler are doing more work, although Parke-Davis & Co. have recently published in the VETERINARY REVIEW the method of technique in which the veterinary practitioner may apply this test. I do not know how it will work when put to a practical test. There is a good deal of work being done along the line of bovo-vaccination, but nothing new any more than has appeared in the VETERINARY REVIEW, and I think nearly every one here has that journal.

I do not know that there is anything else along the line of bacteriology. Of course there are new articles coming out all the time, but many of them are not of practical advantage to the practitioner.

Dr. Amos: You have heard the report. Are there any remarks?

Dr. Anderson: I would like to ask Dr. Beebe what success he is having in tetanus vaccinations. I have lost several horses during the past six months with tetanus.

Dr. Beebe: I think the best results have been obtained by tetanic serum as a preventive measure and not as a therapeutic agent, because the tetanus toxin, after being eliminated from the organism, very quickly unites with the central nervous matter, and as soon as that union has taken place the antitoxin is of no use. If used early in the diseases, you will get good results, but if used later this toxin is united with nervous matter. The theory is that tetanus toxin united with the central nervous matter as a key fits a lock. Good results can be obtained very early in the disease, or before symptoms have developed. In human practice they use it quite a great deal in suspicious wounds. If a child has a bad nail wound they administer the antitoxin, and in that case they usually can prevent the disease, but after symptoms are once manifested it is of no great benefit.

Dr. Amos: If there are no other remarks, we will proceed to the report of the Committee on the Revision of the By-laws. If I remember rightly, I think that committee consisted of Drs. Reynolds, Leech and Mack.

Dr. Reynolds: I had forgotten, if I knew, until coming down on the train that I was connected with such a committee, and I have had no opportunity to confer with Dr. Leech, but Dr. Mack and myself, on the train, looked over the constitution and by-laws, and indicated in the rough quite a number of changes that we though desirable. Now, I would ask, on behalf of the committee, that we merely report progress and be given a little time, and we will report later.

Dr. Amos: The Committee on Revision of the By-laws has reported progress, and request further time to report later. Further time will be granted.

Dr. Amos then called on the following committees to report: Committee on Medicine, Committee on Press Reports, but reports were not made, as the members were absent.

Dr. Amos: The next committee is the Committee on Resolutions, Drs. Leech, R. R. Donaldson and Leffingwell.

Dr. Lech: The Committee on Resolutions has more work, judging from what I have heard read. The other two members are not here, and I would suggest that the chair name a sufficient number to make it out, and we will report later.

Dr. Amos: I will name as assistants to fill out the committee Dr. J. N. Gould and Dr. Cotton. The Committee on Resolutions will report later.

Dr. Amos: The next on the programme is the application for membership. Are there any applications?

Dr. Mack: I have four applications, as follows:

D. J. Holton, Waseca; vouchers, Dr. E. Mackey and M. S. Whitcomb.

A. O. Rustad, Fergus Falls; vouchers, C. A. Mack and D. M. McDonald.

B. Porter, Albert Lea; vouchers, M. S. Whitcomb and W. L. Beebe.

C. J. Sigmond, Pipestone; vouchers, J. P. Foster and G. McGillivray.

After some discussion, the above applicants were separately elected to membership.

The new members were then brought in.

Dr. Amos: On behalf of the Veterinary Association, we welcome you as members of this association.

Dr. Holton: I am very glad to be with you to-day, and I will do all in my power for the veterinary profession, and I appreciate your kindness.

Dr. Porter: I am sure that it affords me a great deal of pleasure to be here to-day and meet so many of the old boys I used to know some years ago, and shake their hand, and also to be admitted to this Minnesota Veterinary Association. I am sure that in my weak way I have tried to do all I could. In different parts of the State I find boys that I have been through school with, and am glad to meet with, and I always want to be professional in everything I do. After a long time, all alone, rubbing up against the quack element, nothing to help you, and nothing to stimulate you, and I have been conscious of that one saying, that it is hard for man to live alone, and I am glad to join with you and give you my hearty support.

Dr. Sigmond: I thank you all very kindly for what you have done for me by electing me as a member of this association. I will try to do what I can to advance the veterinary profession. A great many know I have been a veterinarian for some time and it is mostly a fault of my own that I did not join this association before.

Dr. Amos: We are glad to hear from the new members as to their willingness to help the veterinary profession, and in the near future we will give them an opportunity of helping by advancing papers, helping in the clinic, etc.

We will now proceed to new business.

Dr. Reynolds: I have a few ideas that I want to unload. The first is with reference to the State Agricultural Society. I have satisfied myself that this association is entitled to membership in the State Agricultural Society. I have reason to believe that if this association sends properly certified members to the State Agricultural Society that they would be seated, their credentials accepted and recognized as members of the State Agricultural Society for that meeting. That is the society that has control of our State fair, and it would be a creditable thing to have a say in such an important thing as that society. The membership consists of representatives from the State Live Stock Horse-breeders' Association, the Swine-breeders' Association, the Sheep-breeders' Association and the Bee-keepers' Association. I find, on looking the matter up, that the wording of the law is

to the effect that prominent societies that are actively identified with agricultural or directly connected with agriculture are entitled. Certainly we are that. I move that this association should send two properly certified members and ask that they be seated at this meeting in next January. I think the number should be two.

Dr. Anderson: I second the motion.

Carried.

Dr. Reynolds: I want to represent the Stallion Registration Board here for a few minutes, and give you some suggestions concerning this work, and I know of no place where this should come in. These are some suggestions that we wish that men doing this work might follow rather carefully. Be careful to give horse company's or horse owner's name, particulary horse companies that are known or recognized as legal. Do not report a horse as belonging to some company that your postmaster never heard of. Be sure to have the veterinarian's certificate acknowledged. The first veterinarians' certificates that came in were very few, and we made a mistake in not having a blank at the bottom of that, but a letter was sent out. Be sure and have it acknowledged. Be sure and give correct addresses. In some cases incorrect addresses have been sent in of stallion owners as for one town when they get their mail at some other place. Report all horses examined, whether sound or not and leave the board to decide. If you are called to examine a horse, unless some business reason to the contrary, but the thing the board wishes is that all horses examined should be reported. We have had some cases where veterinarians have refused to examine because they would have to report unfavorably.

It is the intention of the Stallion Board to be very lenient this first year in not making any attempt in shutting down hard and fast. This must be a matter of gradual development. To enforce the law as written would destroy thousands of dollars of property and would cause an amount of enmity against the work which would ruin it and cause the repeal of the law. All stallions applying have been given temporary certificates for sixty days. Quite a number of others and certain classes have been held up until the next meeting of this board, and there are two points I would like to discuss and to know what you think and advise. One is the matter of roarers, true roarers, laryngeal paralysis, and the other is side bones. There are a number of draught horses so reported.

Report all cases if you can and report just what you find, because you might be put in a very unfair situation if you sent in a veterinary certificate and leaving the inference that it is sound, and some other veterinarian in the future reports something you did not think worth reporting. We have not yet come to that point yet, and I am making a suggestion before we get to it. We are especially anxious to get a list of sound horses in the State.

Keep together all papers that you send in and state definitely whose horses the fees cover. Also show just where the pedigrees belong.

I would also like to report to the association that we have another renewal of the appropriation of $5,000, secured by Congressman Davis, in connection with the research work in connection with the Experiment Station, Sanitary Board and the Government. That is to be continued for another year, using it in connection with swamp fever.

Dr. Cotton: I had a talk with Dr. Reynolds in regard to the veterinarian's position as to stallion's soundness. As it stands now I question whether I want to examine any horse for soundness. An animal is brought to a veterinarian to examine and report to this board. He examines it and finds some little thing, and it is a question in his own mind as to the soundness. For instance, we have an animal that has a curb. The law reads that a curb on a curby leg is considered sufficient to refuse a license. One veterinarian might consider it a curb on that limb and another one would not. We send that certificate in for examination and it is up to this board whether they will issue license or not.

In the license they issue, provided they give one, they state that this animal is sound and so reported by such veterinarian. when the veterinarian did not report it so.

It is very rarely that we can absolutely state that a horse is sound. It is up to the board. The license does not enumerate the conditions which he reports, and it is unfair to the veterinarian.

Dr. Anderson: I agree with Dr. Cotton most emphatically.

Dr. Nickerson: The law reads: A horse shall not be examined for four years, and if passed sound now, he will have a pretty good show hereafter.

Dr. Leech: I intended to talk with Dr. Reynolds, but as the question has come up, I will ask, Is not the American Veterin-

arian Association recognized by the Bureau of Agriculture in Washington, D. C.?

Dr. Reynolds: Yes.

Dr. Leech: Then I would like to know the reasons for turning down a horse duly raised, duly numbered and duly recorded, and sending him back a license as a grade horse and not eligible to register, when registered at Washington, D. C.

Dr. Reynolds: Is that horse registered as a standard horse?

Dr. Leech: Yes; registered as a standard horse. When I examined this horse I notified the board that this certificate was burned or lost. There is no question should not registered, unless the board is not satisfied as to whether this is the horse or not.

Dr. Reynolds: No permanent certificates have been issued so far where there was serious question, where there was anything seriously wrong with the horse. Doubtful cases have been held for permanent certificate, and I would propose to protect the veterinarian in the future, so that it shall read, "Serviceable, sound or breeding sound, or practically sound," or something to that effect, so it will not appear that the veterinarian has passed the horse as absolutely sound.

In reply to the question, if the board be rather lenient during the first year or so, and the stallion only examined every four years, and is owned by this old owner, that gives that horse a long term of service. That is true, but that is a rare thing and may happen in a few instances, and we cannot possibly provide for those exceptional cases.

Dr. Leech raised the point concerning the standard bred horse registered by the American Trotting Registration Society, and asked whether that association was recognized, and I said "yes." He then asked why was not a certain stallion given a certificate as a pure bred horse. The owner was sent back a grade certificate. The owner did not send into the board the certificate of registration from the American Trotting Registration Association. The board has so far been asking owners of all pure bred stallions to send in their certificates of registration, as positive proof of registration, and in the office those certificates are compared with the stud books of the various breeds, hunting up the description of the horse, the age, color, markings, because there is a great deal of fraud in dealing with stallions. A great many horses are posing under false pedigrees, and the board is doing the best it can to weed these all out, and I have

been insisting so far on having a certificate of registration from the examining board. It is very possible in this case, if the owner has a horse that is registered in the books of the American Trotting Registration Association, but has lost his certificate, or for any reason is unable to get any, it would still be possible to prove the indentity of the horse. Now, I have not charge of that piece of the work, but I have merely charge of the veterinary work. I am not responsible for that at all.

It was moved that this discussion on Stallion Registration Board be closed.

Dr. Cotton: Speaking of question of soundness, I would personally think that the statement of sound from a breeding standard would be more satisfactory.

Dr. Amos: We have a motion that this discussion be closed.

The motion was seconded and carried

Dr. Amos: Any further new business?

Dr. Reynolds: I have something else. In looking over the constitution and by-laws, I see that my name was omitted. If I was not one of the charter members of this association, I would like to know who was.

Dr. Annand: I was there and Dr. Reynolds was there.

Dr. Amos: I know Dr. Reynolds was a member of that original first State Veterinary Medical Association when organized. It ought to appear on the minutes, and I would suggest, if not on the minutes of the first meeting, that it be added by the Secretary. It is pretty hard to change it on the present by-laws and constitution.

This concludes the afternoon session. It is now 5.20, and we have plenty of time, and I would make a suggestion that we proceed and call on Dr. Reynolds for his report on the Examining Board.

Dr. Reynolds: I wish to bring up the point that there is no provision in the law for the Examining Board to report its financial matters to anything or anybody, although it is a State board. Most boards by law report to the State Auditor, or State Treasurer or Governor annually, semi-annually, but there is nothing in our law concerning the financial matters of the Board of Examiners, as to whom or what they shall report, and it has never been customary for the board to make a report to anybody for anything or anybody. The thought occurred to me that that was not good business, and I made a motion that it be the established custom of the board that hereafter, at certain

intervals of not less frequently than annually, it shall report to this association, giving in full its financial statement, a statement concerning the candidates passed, refused, changes in the law and rulings from the Attorney General's office, so that this association might know thoroughly concerning the work of the Examining Board.

Dr. Reynolds then presented his report.

Secretary's Report for the Semi-Annual Period Ending July 9, 1907.

To the State Association:

I take pleasure in reporting that since our last meeting the Legislature has passed a new practice act, revising quite materially the old one. The following are the important features:

Terms of membership, five years, instead of two.

One appointment to the Examining Board each year, instead of all members at the same time.

Date of examination is changed to the Tuesday preceding the second Wednesday of January and July.

In the matter of colleges whose graduates are eligible to examination the word " reputable " is inserted, giving the Board power of discretion.

All certificates are hereafter subject to annual renewal, provisions being made for renewal on or before the 1st of May of each year.

The bill passed much later than was expected, and there was not time to arrange for registration for 1907 before May 1st. We therefore acted on the spirit, rather than the exact letter of the law for the first year.

The board is given authority to revoke or refuse renewal for gross moral or other professional misconduct.

Certificates are now to be recorded in the county or counties where a man practices, instead of in the county where he resides. It is not necessary to record annual renewals.

Prosecution may now be either civil or criminal, and penalty either fine or imprisonment, and punishment may now be more severe.

It will be noticed that we have secured all of the features recommended in our last semi-annual report and something in addition.

I think we may now feel that Minnesota has as good a veterinary practice act as there is in this country, and that we are

on a good, safe financial footing for the future, the board being assured sufficient income to pay the necessary routine expenses and to provide for all probable expenses incurred in connection with prosecution suits.

Additional Rulings from the Attorney General's Office.

Since our last meeting, we have had several important rulings concerning the law from the Attorney General's office, of which rulings I will give brief summaries.

The question was raised as to whether the clause in the Code of 1905 which provided for the examination of candidates who could show five years' practice in another State (which has since been repealed) implied that the practice must have occurred in one State. Attorney General Young ruled, under date of October 10, 1906, that the important feature was five years of previous practice, and that the phrase could read, and should be construed, "in any other State," instead of "another State," *i. e.,* whether the practice occurred in one or several States was immaterial.

Concerning an application made under the five-year clause of the old law, mentioned in the previous paragraph, and which was received before chapter 419, Laws of 1907, went into effect, Assistant Attorney General Simpson ruled, under date of May 17, 1907, that such candidate would be entitled to examination, and certificate, if examination be satisfactory, the application having been made under a law then in force.

Concerning an application for examination under the third proviso, chapter 419, which expired in ten days after the passage of the act. An applicant was received a few days after the expiration, the applicant proving that the law had not been published in his local papers by the Secretary of State until several days after the expiration of this proviso, and that he made the application promptly after such publication. The Assistant Attorney General Simpson held as follows:

"That while perhaps strictly under the law, an applicant must be presumed to have had knowledge of the fact that such law was in existence, yet, if under all the circumstances, you are satisfied he acted in good faith, I should issue certificate to practice."

This may reasonably be taken to mean that the board *may* issue certificates under such circumstances, and that the board may have some discretion in such matters.

Since my last report, we have simplified somewhat our methods of filing correspondence and records, and of keeping records. We now use a series of two letter baskets and corresponding files, one for "pending," which includes applications, unfinished cases, and practically everything which is to come before the board at its next meeting.

A second, "current," receives current correspondence and "pending," after these are finished.

All cash received and cash paid shows in the check book, the board keeping check account with the First National Bank of Minneapolis. All bills, both large and small, are paid by check, and each check shows on the face the bill for which it is drawn.

We now have the veterinarians of the State card-indexed in three separate sets, each alphabetically arranged, one for the registered men, classified by towns; one for unregistered non-graduates, and another for unregistered graduates. The official list of registered veterinarians is kept by name, alphabetically arranged in an official book register.

At the January meeting of this board there were nine candidates, six graduates and three non-graduates. Four graduates were passed, two failed. Three non-graduates were under consideration. Of these two were held over and one up for examination failed.

It may be interesting to note the effect which the new stallion law has had upon our official registration list and upon annual renewals. A considerable number of unlisted certificates have been discovered under the working of the stallion law, and a number of tardy renewals came in promptly when the holders of certificates were notified by the Secretary of the Stallion Registration Board that their certificates were not in force by reason of failure to renew.

It is with pleasure that I am able to report that all graduate certificates have been renewed except three, which seem to have been lost as to address.

Fifty-one non-graduate certificates have not been renewed and, of course, are not in effect.

In closing this, which may be my last report as Secretary of the Minnesota State Veterinary Examining Board, I wish to thank the members of this association most heartily for their assistance and co-operation, and to urge a continued active interest and as close personal knowledge of the work of the board as possible on the part of each member of the Minnesota State

Veterinary Association. Numerous other duties in addition to my regular station and university work have made it necessary for me to be relieved from this and possibly other outside responsibilities. I hope that my resignation may yet be accepted.

M. H. REYNOLDS, *Secretary.*

NOTE.—According to our established custom, an itemized financial statement was printed as part of this report to the association. This was audited, verified by statement from the First National Bank of Minneapolis and signed as correct and approved by J. G. Annand, Chairman, Finance Committee of the State Association. M. H. R.

Dr. Amos: You have heard the report of Dr. Reynolds. Dr. Reynolds is the first secretary that has ever given us a report of the State Examining Board. We have had State boards, and have asked them and insisted on having report, but could not get one. When the Secretary was asked for a report and brought up to the Governor of the State, the Secretary left the State. We have had a very comprehensive report from Dr. Reynolds. We can certainly congratulate ourselves on the financial condition of the Veterinary Board, a balance of $600 or more.

Dr. Gould: I think, perhaps, some of the newer members do not realize the healthy condition of the Examining Board. I remember a few years ago when we took up a subscription from the members of this association to give the Secretary some money to use in prosecution work. Some of it was paid and some was not. This method of collecting a little money to aid this work was a great deal of a voluntary contribution. Some of the contributions dragged along and never were paid. This method of an annual fee is a very good way. I remember the first board we had, whatever money they collected there never was a report made of it and no one knows how many licenses were issued. Each succeeding board has done a little better, and this last board has certainly done a great deal better. The report looks very nice to me. It looks good and undoubtedly can still be improved upon, although this is very satisfactory.

Dr. Reynolds: As late as about three years ago, the average receipts for six months was $43.46. The average expenditures were $73, and the board was going in the hole about $30 each meeting, twice a year. Some members came to the meeting and paid their own expenses.

Dr. Gold: The veterinary law has been getting a little bit better for the veterinarian, and this new stallion law that has

been put upon the statute books will be of more benefit as the years go by. To start with, it is probably not just what the veterinarian would like to have it. As years go by it will be what the veterinarian would like to have it. If we could do what we can to help the board each succeeding four years, or whatever the period may be, it ought to be a little bit better and be of more value to the veterinarian than it is perhaps now.

The meeting then adjourned until 7.30 p. m.

The meeting was called to order at 8 p. m.

Dr. Amos: There is a matter that has been brought to my attention, and we should have acted on this afternoon, which would have been the proper time, but there has been a little incident occurred since our last meeting that I think ought to be taken notice of by this association. What I refer to is the loss of one of our best members of the association, an active worker and one ready all the time to work. I refer to the head of our Sanitary Board, Dr. Ward. (Applause.) Dr. Ward has been with us for a long time, and he has been a mainstay you might say of this association, always ready to do his part. He has always been in position to give us some information, not only as executive officer of the Sanitary Board, but as a member of this association we have had a loss. But it is for his benefit, I think, and I would suggest that a motion should be made to place his name on the list of our honorary members of this association.

Another thing I would like to bring to this association is this, Dr. Ward ably filled the office, and it was a pretty hard office, as executive officer of the State Board, to fill. His successor is appointed, and he is a man I know will fill the office, but as a man he cannot fill the office, I do not care who he is, unless he gets the hearty support of every member in the association. The best thing we can do now—remember I am not coming here begging your support, for Dr. Whicomb deserves that support, and will get it, and is able to fill the office, and had a drilling under Dr. Ward, and is fitted to follow in Dr. Ward's footsteps. There is an old saying, there are just as good fish in the sea as those that have been caught, and I only know that Dr. Whitcomb will fill this office, but at the same time we have, as individual members of the association, to give Dr. Whitcomb our support. If Dr. Whitcomb tried to do it alone, it would be like the organist who tried to give a great display, and he happened to be giving a fancy piece of music, and the pumper says: "Didn't

we give them grand music?" The musician said, "You; what did you do with it?" When he was giving his fancy music again the pumper happened to stop, and the organist looked up, and the pumper looked up and said, "We are doing it now."

It is we, and the organist is Dr. Whitcomb. I think it would be a good motion to make, both in regard to ourselves, as members of the association and as individual members, both in regard to Dr. Ward and his successor, Dr. Whitcomb, to bring it to the attention of our Committee on Resolutions, so that I think that the Committee on Resolutions can take it for granted, without putting it to a motion or taking any vote on it, for Dr. Whitcomb can rely on this association and the individual members of this association to stand at his back, and he can consider we are with him.

The first on the programme is a report by Dr. Gould.

Dr. Gould then read his paper.

Injury of the Synovial Bursa of the Flexor Brachii.

Case 1.

Bay mare, four (4) years old, owned by Mr. Greenland, of Round Lake, Minnesota, June, 1896.

This animal had been stiff and lame for some months. A large tumor had developed on the arm below the point of the shoulder towards the outside. This enlargement had reached such dimensions that it covered nearly the whole region.

Diagnosis—

Abscess of same character, and advised the owner of a possible serious outcome.

Operation—

Surface carefully disinfected and a free incision made, followed by the escape of a large quantity of partly coagulated serum and synovial fluid.

Exploration—

Exploration revealed the presence of a rupture of the synovial sack of the flexor brachii along the outer border of the muscle. The cartilaginous surfaces were smooth and apparently healthy.

Treatment—

Irrigation with 1 per cent. solution of phenol.

Recovery—

Recovery was rapid and complete.

Case 2.

Brown mare, owned by Mr. Beckley, of Worthington, Minnesota. I first saw this case in the fall of 1906. A diagnosis of the shoulder lameness was made, and a mild liniment was prescribed, followed by improvement. Later I was called to see the patient. The animal had evidently injured the shoulder again, and was unable to use the leg to any extent. I again prescribed a liniment and later a blister was applied. A small swelling, quite hard, appeared below the point of the shoulder towards the outside. I did not see the animal again until the spring of 1907, although the owner had occasionally reported that the animal had not improved. When again presented for treatment the enlargement had grown so that it covered the entire region at the point of the shoulder. The owner was informed of the probable condition and a doubtful prognosis given.

Operation—

The operation the same as in Case 1, and on exploring the cavity a certain amount of roughness on the outer edge of the bursa, which was ruptured its entire length on the outside.

Treatment—

Formalin solution, 1-1000 injection, followed by rapid recovery. The animal having free use of the limb when walking. Shows some stiffness when moving at a trot.

Case 3.

Gray mare, eight (8) years old, owned by C. Morgan, of Round Lake, Minnesota.

This case was presented for treatment in the fall of 1906, and at that time a diagnosis of the shoulder lameness was made. The animal dragged the toe when walking and swung the leg out when advancing it.

Treatment—

Blistering was prescribed and an apparent recovery made under this treatment. The patient soon became lame again when put to work, and returned for treatment in a few weeks, and the same treatment prescribed as before. The patient was lost sight of until in the spring of 1907. She was returned for treatment in June, 1907. At this time a small swelling had appeared below the point of the shoulder towards the outside.

Diagnosis—

Rupture of the synovial bursa of the flexor brachii. The owner was advised of the possible stiffness remaining after the operation.

Operation—

Same as in Cases 1 and 2, revealed the presence of a small quantity of synovia in the surrounding tissue. Exploration revealed a rupture of synovial sack along its outer border and a roughness of the cartilaginous surfaces of the bone and muscle.

Treatment—

One per cent. solution of phenol irrigation at first, and later injections of ætherial solution of iodoform. The cartilages sloughed off and the muscles healed fast to the bone. At the present writing the animal is somewhat stiff, but able to walk home, a distance of eight miles.

J. N. GOULD.

Dr. Amos: You have heard the report of Dr. Gould's cases. Any remarks to make or questions to ask?

Dr. Cotton: How do you diagnose it as a rupture of the sheath?

Dr. Gould: For this reason, a peculiar swelling and a peculiar place, a place you would not have an abscess of any kind. The first case I did not recognize it, but it is distinctly a rupture.

Dr. Cotton: It is limited to a sac?

Dr. Gould: No; it is ruptured and the synovial escapes. Perhaps part of that is serum. There is no pus, so evidently it would be partly serum and synovial pus.

Dr. Cotton: It could not be an enlargement?

Dr. Gould: I do not think it possible, because the tissues are so dense. I do not think you will find an enlargement of that kind, but a rupture.

Dr. Cotton: Had nature formed an artificial wall?

Dr. Gould: No; the first case I saw I did not recognize it, until after I operated on it. The first one I opened there must have been perhaps one-half gallon. It was an immense thing. I saw the case when it was in that stage. It had been growing slowly some months at least.

Dr. Cotton: The last one you stated, the size of a fist, was the one you recognized?

Dr. Gould: Yes; and there was some sloughing of the cartilage before I saw it. It must have been from some severe injury on the point of the shoulder.

Dr. Whitcomb: I would like to ask what he thought was the cause of these ruptures. Whether it was a sprain or bruise?

Dr. Gould: I do not know how a bruise could do it or a sprain could do it.

Dr. Whitcomb: No peculiar work they were at?

Dr. Gould: No.

Dr. Annand: Was that second case the case of an animal that had been working?

Dr. Gould: It was a traffic mare and had been driving.

Dr. Amos: We have with us to-night Dr. Tomlinson, and he is to speak on a subject of interest to all of us, and I anticipate a treat from the paper we are to hear from Dr. Tomlinson.

Dr. Tomlinson: Tuberculosis and its pathology is always an interesting subject, and it is also one in which the physician and the veterinarian can meet on common ground. It so happens that during the past fifteen years I have had the opportunity to study human and bovine tuberculosis side by side, and the comparative study of the morbid anatomy of tuberculosis has been of great assistance to me in determining the significance of certain pathological conditions that were obscure when considered from the standpoint of the morbid anatomy and histology of human tuberculosis alone. Among the lower animals I have had the opportunity to study the incidence and pathology of tuberculosis in 120 cows, 2 oxen, 3 deer and one mule.

To begin with the mule; this animal and her mate were kept for some time in a dark basement stable under the barn floor upon which our cows were stabled. This floor was leaky, and there was an almost constant drip from the floor above, especially in the winter, when the cows were in the barn all day. About two years before this mule was killed she began to be lame in the off fore leg, on account of stiffness in the knee. Later the knee began to swell, and the swelling was doughy. Under vigorous local treatment this swelling partially disappeared, and the lameness was less, but, after a time, the animal became permanently stiffened, often stumbled, and frequently had to be helped up in the morning. The knee and leg became deformed, showing that there was marked involvement of the joint surfaces. About a year before the animal was killed, she grew very much emaciated; the paunch became markedly dependent, and the animal more feeble. After she was killed the lungs were found to be fibrous, the spleen atrophied and the pericardium nodular on its inner surface. The capsule of the liver was thickened and adherent, and the

liver substance was fibrous. The joint was disintegrated, and the capsule as well as the articular surfaces had undergone tuberculous degeneration.

Among the cows killed two had tuberculous joints. In both cases the hock joint was involved; as this joint is most likely to be strained in slipping, in getting up or sliding on a slippery surface. In both cases the tuberculous involvement of the joint was acute and very painful, although there was very little swelling. Post-mortem, typical involvement of the joint was found, with infiltration and fibrinous deposit in and about the joint. There was no evidence of gross tuberculous involvement in any other part of the animal's body.

The oxen had been kept for years in the stable under the cow barn before referred to. Both became very much emaciated some time before they were killed, but there was no cough, and they continued to eat well. In both cases chronic involvement of the pericardium, lungs, liver, spleen and kidneys was found. The involvement of the kidneys being most recent and acute. We have found, as a matter of fact, that cattle becoming emaciated during the course of tuberculous disease always show marked involvement of the parenchyma of the kidneys, with a large amount of fat in the pelvis.

The yard in which the deer were kept was below the yard of the cow barn, so that drainage from the cow barn was through this yard. The deer had been inbred for many years, so that their power of resistance had been much reduced; and besides, the yard was small, thus circumscribing their movements. The first evidence of disease among them was in a fawn that became rapidly emaciated and died. Post-mortem, there was found what used to be called tabes mesenterica in children. The mesenteric glands were involved and the intestinal wall was thickened. Finally, all of the deer, except two, died under practically similar conditions; only the older ones showed fibrous involvement of the lungs.

There have been two periods of involvement of our herd of cows. In 1894 we killed 65 cows, and in 1906 we killed 36 cows. Between these periods several were killed as the result of a clinical diagnosis of tuberculosis, or for other reasons, and the animals were found to be tuberculous. In the first lot of cows killed the disease was very much advanced in some of the animals, with cough and profuse discharge from the nose. At this time our herdsman, and a patient who helped him while testing the

cows, were infected, and both of them eventually died. Human and bovine bacilli were found in the sputa in both cases during the acute tuberculous process. As a rule, the cows that were Jersey or short horn crosses were more seriously affected, and showed the most acute and extreme changes. Besides the more nearly they were thoroughbred, the more rapid and extensive was the tuberculous involvement. One animal, a short horn cross, in splendid condition and a good milker, responded with a very high temperature; and post-mortem, a very large tuberculous abscess was found at the base of each lung posteriorly. These cavities did not contain true pus, but a mass of cheesy and oleaginous material. The second lot of cows, killed in 1906, had all been kept as calves, during the winter, in the old underground stable before referred to. These cows, with two or three exceptions, were Holstein crosses, fine animals, and in excellent physical condition. They had all been bred from cows free from tuberculosis, but, as stated, they had been exposed to infection during calfhood. However, all of those that were exposed did not become tuberculous. Among these animals the morbid anatomical changes were confined largely to the pleura and mediastinal glands, and the involvement was acute. The lungs in these cows were fibrous, and the older the animal the more marked the fibrosis. One cow had a large gland in the posterior mediastinum that was a cyst of pure oil. In a series of four of these cows the spleen and its capsule were markedly degenerated; the capsule being very much thickened and studded with tuberculous nodules, while the substance was fibrous and shrunken. The liver was commonly fatty in the younger animals, and almost all of the cows killed showed marked parenchymatous change in the kidneys.

In the first lot of cows killed there was one with tuberculous involvement of the udder, and as, at that time, the question of the source of tubercle bacilli in the milk was to the fore, we experimented with this animal. With all ordinary precautions tubercle bacilli were always found; but after thorough cleansing and the withdrawal of the milk with a sterilized tube, no tubercle bacilli were found. Our experience would lead us to believe that the presence of tubercle bacilli in the milk results from external contamination, and while we have had only this one opportunity to test the milk from a cow with a tuberculous udder, the negative evidence is good, so far as it goes. It is so easy to contaminate the udder externally, especially if there is nasal discharge,

and dust in the stable may accumulate in the crevices about the orifice in the teat. Besides the tuberculous deposit is in the structural tissue between the acini of the gland, and not in the glandular structure itself, so that the opportunity for the bacilli to get into the milk is not good, and by the time the glandular tissue breaks down the tubercle bacilli have disappeared.

With regard to the comparative pathology of tuberculosis, it is well known to you that among human beings the destructive changes in the lungs are the result of secondary infection with the pus forming bacteria, and that the chronic septicemia which results is the cause of the characteristic symptoms of destructive disease of the lungs. In cows I have never found this secondary infection, because we kill the animals before the disease has reached this stage; but I presume you have seen animals with secondary infection, and the characteristic abscess cavities. In our experience the lungs are fibrous, and the pleura thickened; the mediastinal and bronchial glands enlarged. The cervical and mesenteric glands are often involved, nor do we find tuberculous involvement of the intestinal wall. We have seen only one case of tuberculous pericarditis. In this animal there wes no other evidence of tuberculous infection, but the pericardium was from one to two centimeters thick, and, with the heart, weighed 38 pounds. There was some involvement of the cusps of the sortic and mitral valves, and some endocardial thickening. The absence of secondary infection with the pyogenic bacteria probably accounts for the fact that tuberculous cows are seldom emaciated. We have always noted that in our patients who were markedly defective, and in our senile cases of fibroid phthisis; the external surface of the lung was peculiar. The pleura was not only thickened, but it dipped down between the lobules, outlining them in such a way as to give the surface the apperance of scale armor. When we made our post-mortem study of the lungs of tuberculous animals, we found this same condition, only more marked. We also found that this condition was uniform in tuberculous cows; it was only present in the defective and the senile among human beings. This correspondence suggests the probability that in human beings who are defective, and in those in whom senile changes are present, there is the tendency to revert to the biological characteristics of the lower type. It has been our experience that in the lower animals the tendency toward the degeneration of structural tissue is always more marked than the disposition toward destruction of functional tissue. It is for this

reason, we believe, that tuberculous disease runs such a different clinical course in human beings, than it does among the lower animals. There is further proof of this contention in the fact that the more defective the human being is mentally, the nearer is the resemblance in the clinical manifestations of tuberculous disease, and the greater the similarity in the post-mortem findings.

In our experience, the conditions that favor infection of cattle are the same as the conditions that favor the infection of human beings, that is, absence of light, want of fresh air and overcrowding. Again, there enters into this comparison another common factor. All human beings subjected to the conditions that are favorable to tuberculous infection do not develop the disease, and the same is true in the lower animals. Among human beings, while a bad environment increases the susceptibility, the predisposition must be there, and the same holds true in cattle. In our experience, inbreeding, and breeding for a particular characteristic, are the dominant factors in establishing this predisposition in animals; and this is illustrated by the fact that in spite of the utmost care and the best environment, the high-bred herds are decimated by tuberculosis. The short horn milk strain and the Jersey seem to be most susceptible in the order named. The long continued breeding for a special purpose, and one that is so extreme in its demands upon the general organism as is lactation, seems to have lowered the powers of resistance in these particular breeds in this country.

The avenues and mode of infection with tuberculosis are still the subjects of discussion and difference of opinion, but among animals in the barn, infection must take place in one of two ways, and probably in both. That is, by contamination of food, or by inhalation. From the fact, reported to me by Dr. S. H. Ward, Secretary of the State Live Stock Sanitary Board, that glandular infection is most common in cattle, it would seem to be immaterial how the infection was introduced, except that it is possible that when the food is contaminated infection is more likely to occur in the mesenteric glands, while from inhalation infection of the cervical, bronchial and mediastinal glands would be more likely. On the contrary, the insane who are tuberculous almost always swallow the sputa, and yet very seldom suffer from involvement of the mesenteric glands. It would seem that, as even the same herd, subject to the same conditions, shows so much variation in the location of the disease in different individuals, without regard to the avenue of infection, the disease

will attack that part of the organism that is weakest, and congenitally least resistant. It is our experience that this is true for human beings, and I believe it is also true for the lower animals.

Dr. Annand: In regard to your milk infection. Did you experiment with it in feeding it to other animals in which you could not find any disease?

Dr. Tomlinson: We introduced the milk into the peritoneal cavity of the guinea pig.

Dr. Annand: We very often have pigs fed from cows that are tuberculous that develop tuberculosis.

Dr. Tomlinson: We have frequently found infection of hogs, with the cervical glands involved.

Dr. Cotton: I want to agree with Dr. Annand, and assure Dr. Tomlinson we do get a double infection in cattle, and it is not an uncommon thing to find immense absecsses as well as the tissue degeneration. I would like to ask Dr. Tomlinson if he knows the source of infection of this mule. If he made cultures and was satisfied that this was tuberculosis?

Dr. Tomlinson: This animal hauled the slops to the hogs, and was kept in the same stable for years as the oxen, so that she was in contact with the source of infection.

Dr. Cotton: What was the source?

Dr. Annand: An injury?

Dr. Tomlinson: It may have been an injury. We found the typical tuberculous lesions.

Dr. Cotton: I want to question the diagnosis the diagnosis in the knee joint of that mule.

Dr. Tomlinson: The guinea pigs injected with the fluid from the joint died from tuberculosis.

Dr. Reynolds: I am sure we all appreciate the courtesy that Dr. Tomlinson has given us, and given us this little talk on comparative pathology and therapeutics, and I am going to move that a vote of appreciation be extended for this courtesy. I have reason to think that Dr. Tomlinson has a great deal of respect for the veterinary profession, in that he told me at the table this evening that he has it in his mind—he is now President of the Minnesota Medical Association—to establish a sort of section in that society. The same proposition is under way in the A. M. A., and he wants it in Minnesota, and that shows a good deal of appreciation and kindly feeling toward our profession. Dr. Tomlinson has shown himself thoroughly acquainted with the pathology and subjects in which we are interested. I fear there are a great

many veterinarians, myself included, that do not know as much about pathology of tuberculosis as Dr. Tomlinson. I move a vote of thanks and appreciation to Dr. Tomlinson.

Dr. Dell: I am sure I listened to it with a great deal of appreciation, and if I had been looking around for a talk on tuberculosis, I do not believe it would have occurred to me to go to St. Peter to find a man. I second Dr. Reynold's motion.

The motion was unanimously carried by a rising vote.

Dr. Tomlinson: I have enjoyed being here just as much as you have in having me here. I appreciate the opportunity of learning what I can from you.

Dr. Amos: We will proceed to the next paper, by Dr. Dodge, of Northwood.

Dr. Dodge was not present, but the following paper from Dr. Dodge was read by Dr. Mack:

" My object in giving this short description is to show that important symptoms sometimes vary or are entirely absent in certain conditions.

" The older men, no doubt, have had such experiences as I have had in this case, but those who are forced, because of lack of experience, to rely on the text-book for their symptoms, may find something in this that will be of use to them some day.

" Sorrel gelding, five years old, was brought to me the latter part of July. There was slight muco-purulent discharge from right nostril and the sub-maxillary glands slightly swollen. Horse ate well and appeared to feel normal, but when put to the trot there was a decided roar, the vibrations of which could be plainly seen and felt over the region of the larynx. The owner said horse had not been well for several months. Had taken him to another veterinarian, who told him the trouble was nothing but the distemper, and that he would come out all right.

" My first conclusion, after a careful examination of the oral and throat cavities with the aid of a speculum, was a laryngeal polypi. I could not say positively that such was the case, so owner did not care to risk an operation without first trying something else. I prescribed a blister for throat and an electuary containing potassium chlorate and the tincture of chlor. of iron. Saw horse three or four weeks later. He was much distressed and had considerable trouble in swallowing. I inserted a trachea tube, after which he appeared much relieved and began eating grass, but swallowed with difficulty. Directed owner to test him

every day for a week or so by placing hand over the tube, and if he got no better to bring him to my stable.

" In about a week he brought the horse to me. I decided to make an exploratory incision into the larnyx, which I did on the median line, as for roaring, but found nothing whatever. I could pass a stomach tube easily up each nostril and out my opening, or pass it through the opening and out either nostril, Allowed wound to heal, which it did readily.

" I now directed my attention to the gutteral pouch, although I had nothing but the discharge to indicate such a condition and that was far from what one would expect. I could not by any manipulating increase the discharge, nor would it flow faster when horse lowered his head to drink, which he would do readily. There was no swelling over the pauches or in the parotid region. As the discharge was from the right nostril, I opened the right gutteral pouch through Vihorg's triangle and was rewarded by finding nothing. This operation I repeated a few days later on the left pouch in the same manner, and removed about a pint and a half of pus and a small cartilaginous mass, about the shape of a hen's egg and about half that size. Placed a strong rubber drainage tube into pouch and flushed it once a day with a creolin solution, and once in a while with a weak hydrochloric acid solution. When the discharge had nearly stopped, I sent horse home. He afterward lost the tube while in the pasture and made a good recovery."

Dr. Amos: We cannot expect Dr. Mack to defend Dr. Dodge's paper, and if there are no remarks, we will refer back to the report of the Committee on Resolutions.

Dr. Leech: The committee is ready to report, and I will ask Dr. Cotton to read it.

Dr. Cotton then read the following resolutions:

Whereas, The Allwise Creator, in His wisdom, has removed from our ranks our esteemed and venerable charter member, Dr. B. Lambrechts, of Granite Falls; be it

Resolved, That we hereby express our deepest regret and sorrow at the loss of so valuable a member of our society; and further, be it

Resolved, That a copy of this resolution be sent to his immediate family and also spread upon the records of this association.

G. Ed. Leech,
J. N. Gould,
C. E. Cotton,
Committee.

Whereas, This association has sustained a great loss in the retirement of Dr. S. H. Ward from the ranks of the profession of this State; be it

Resolved, That we hereby express our deep regret at the loss of so valuable member, and also express our high appreciation of the work done by Dr. Ward as executive officer of the State Live Stock Sanitary Board, and while it is our loss we hope and predict for him the same or greater success in his new field of labor.

And Whereas, We deeply regret the loss of our Dr. Ward, we wish to congratulate the profession and the Sanitary Board upon the selection of so valuable a member of our association as Dr. M. S. Whitcomb to fill the position; be it

Resolved, That we recommend that each and every member of the association shall do everything in his power to aid and support Dr. Whitcomb in fulfilling the duties of his office.

G. Ed. Leech,
Chairman.
J. N. Gould,
C. E. Cotton.

It was then moved and seconded that the resolutions be adopted. The motion was carried.

Dr. Cotton: Perhaps some of the members would like to know the results of the last clinic.

Dr. Amos: That would be very interesting, and the clinic was held at Dr. Cotton's infirmary, so we will hear Dr. Cotton's report.

Dr. Cotton: As regards the two smaller animals, the one in which we had placed a marble in the intestinal tract made a nice recovery, and we afterward performed ovariotomy and gave her to a farmer. The ovariotomy performed by Dr. Neumann also made a nice recovery.

You will, perhaps, remember the case for diagnosis where the median neurectomy was performed. You will remember that we felt we were justified in performing the median neurectomy, and the animal was lame for about one-half hour after it was cocained, but perhaps the stimulation of the cocaine overcame the lameness. You will remember that when they first took the animal out after cocaining the median, he went lame and then afterward practically sound, but the results of the operation were anything but satisfactory. I do not remember that there was any other operations, except on the animal we destroyed.

Dr. Amos: I think it would be well to call on the Revision Committee for their report at the next meeting in St. Paul, so that we will have it understood that we will call for the revision of the by-laws at the annual meeting.

Dr. Reynolds: That matter of attempting to secure recognition from our Agricultural Society. The motion was passed to send representatives with the request for admission and recognition, but I do not remember that it was settled as to how those representatives were to be selected, whether appointed by the chair or elected by the association.

Dr. Amos: What manner of procedure would you advise about appointing a committee.

Dr. Reynolds: The simplest way would be for the chair to appoint a few delegates. All other associations are represented by two delegates.

Dr. Woods: I understand that the county fairs have two delegates and the other societies have two also.

Dr. Reynolds: They are to be from some organization identified with agriculture in an active way. Surely we are, if the beekeepers are. I move that the President appoint two delegates and the Secretary be instructed to furish them with proper credentials.

The motion was seconded and carried.

Dr. Reynolds: I would like to have the official approval of this association, particulary in regard to the report of the Examining Board. My idea is that that report should be made to this association and approved by this association, and practically audited by the Finance Committee of this association.

Dr. Leech: I think this society has really furnished funds, which are in the hands of the Examining Board, and the State has made no contribution to that fund at all, and it remains for those who have furnished that fund to know somewhat of the disposition of it, and I know no other source better than this to bring that matter for report, and that our Secretary shall issue an acknowledgment of that report, and practically audit that report by receipt to the Examining Board. I make a motion that the report shall be received and audited by the Secretary or some one appointed, and a receipt made back to the Secretary of the Examining Board.

Dr. Amos: I would like to see that accepted by the whole association, but we do not meet again in session and there is no one who can report, as it has not been examined.

Dr. Reynolds: I suggest this as a substitute, that the report of the Examining Board be accepted by this association, subject to inspection by the Secretary.

Dr. Cotton: The Secretary is a member of the Examining Board.

Dr. Reynolds: Then subject to the approval of the Chairman of the Finance Committee.

The motion was seconded and carried.

Dr. Annand: I wish to bring up one thing. Always at our annual meeting, when we have election of officers, especially President, at the adjourned meeting of the evenings, the old President steps out and the new President steps in. It is customary at our American Association that the President who was in the chair at the beginning of the meeting presides until the meeting is over with, as he is entirely familiar with everything. I think it would be well to adopt that plan, instead of the plan we have always had. I think it would be more harmonious.

I make a motion that at our annual meeting the old President retain the chair until the end of the meeting, and the newly-elected President shall be installed previous to the adjournment of the meeting, but not preside at that meeting.

The motion was seconded and carried.

The meeting was then adjourned.

C. A. MACK, *Secretary.*

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order by the President, Dr. F. H. Barr, Pana, at Springfield, July 10, 1907.

In the absence of Dr. Hayward, Dr. L. A. Merillat was appointed to act on the Board of Censors during the meeting.

The minutes of the last meeting were read and approved.

The following applications were read and each elected to membership:

J. M. Wright, D. V. S. (C. V. C., '89).
Earl R. Swim, M. D. V. (McKillip, '05).
H. M. Schultz, M. D. V. (McKillip, '04).
O. M. Winters, V. S. (Ont., '04).
G. A. Barnes, M. V. D. (McKillip, '06).
J. O. R. Campbell, M. D. C. (C. V. C., '07)

G. W. Wolaver, Jr., M. D. C. (C. V. C., '05).

John L. Lyle, M. D. C. (C. V, C., '04).

M. L. Hynes, M. D. C. (C. V. C., '06).

Reading and discussion of papers, Dr. C. S. Hayward, Matoon, Ill., "Urticaria." This paper brought out a very interesting discussion upon the different types of skin diseases and treatments.

Dr. A. H. Baker gave a lengthy description of the pathological differences of the most prevalent skin diseases, which was appreciated by all present.

Discussion was closed after most all the members present had taken part, including Dr. H. E. Titus, of Lafayette, Indiana.

Dr. C. G. Glendening, "Case Reports."

His paper consisted of reports of peculiar cases of choking,

Case 1. Post-mortem revealed about 8 inches of the œsophagus near the stomach packed with the larvæ of the oestrus equi.

Case 2. Had symptoms of choking. No result from passing the probang. Post-mortem found hypertrophy of the heart.

Case 3 caused every one present to give their closest attention. These cases were those that most of the veterinarians have had to deal with more than usual the past season.

The animal develops rather suddenly the symptoms of a chronic roarer; some die in a very short time. A few cases were reported to have recovered. Some of those that live are left permanently affected.

Drs. Baker and Merillat have found by the use of microscope very marked indication of some form of bacterial invasion of the laryngeal muscles. They stated that they would be pleased to receive a subject or two for further investigation by the Professor of Pathology of the C. V. C.

Almost every one present took part in the discussion.

The noon hour having arrived, the meeting adjourned to meet at three o'clock p. m. All present then enjoyed a pleasant hour, supplying the inner man with the elaborate supply of the many good things from the tables of the Hotel "St. Nick."

At 1.30 o'clock all present went in a body to the State Capitol, where a reception was tendered by the Governor, Hon. C. S. Deneen, and the Board of Live Stock Commissioners. The following resolutions were read by Dr. A. H. Baker and presented to the Governor:

To the Hon. Charles S. Deneen, Governor of Illinois:

The Illinois State Veterinary Medical Association, in semi-annual convention assembled in Springfield, begs to express to you the following resolutions:

That Whereas, The veterinary profession in this State has advanced, progressed, and has been materially benefited by your aggressive, yet conservative administration; and

Whereas, Your recognition of the benefits of veterinary education as compared to empiricism has redounded to the welfare of the profession and will redound immeasurably to the welfare of the people of this State;

Resolved, That the thanks of the members of this association and the profession in general throughout this State are due, and are hereby tendered to you for the appointment of a properly qualified State Veterinarian, and for the extending and broadening of his powers. Also for your support and indorsement of the establishment of a School of Veterinary Science and Research in this State. Also for the enactment of the statute legalizing meat inspection under the supervision of the State Board of Live Stock Commissioners.

A. H. BAKER, V. S.,
L. C. TIFFANY, V. S.,
W. J. MARTIN, M. D. C.,
L. A. MERILLAT, V. S.,
ALBERT BABB, M. D. C.,
Committee.

The Governor responded in his pleasant way, assuring those present of his appreciation of the call and of his earnest desire to assist in elevating the veterinary science to its highest point of usefulness, and that he is giving his hearty support to the founding of the College of Veterinary Science and Research at the National Stock Yards, Chicago.

The Governor was then introduced and shook hands with every one present.

Three o'clock p. m. Reconvened. Paper by Dr. James Smellie, Eureka, subject, "Metritis in the Mare."

This subject proved to be very interesting, and elicited a very profitable discussion, which was indulged in by a large number. Nearly all agreed with the essayist that hot water douches with antiseptic was the most successful way of treating the trouble.

Paper by Dr. W. H. Welch, Lexington. Subject, "Interesting Lesions." This paper was listened to with much interest,

it dealing with pathological and anomolous conditions found in cryptorchid castration. It created a very animated discussion.

Dr. E. A. Jenkins, Shelbyville, presented a paper entitled, "Strangles of the Genitals," and contained some interesting features that brought forth a discussion of much interest to the country practitioner.

Dr. C. C. Mills, Decatur. "Some Things That I Have Observed." This paper was of much length and fully showed the scholarly attainment and ability of the essayist. The author offered some very commendable criticism to our State University for not having in its faculty a learned Pathologist. As one cause for his criticism, he read a very elaborate report of his experience and observation of the so-called "corn stalk disease" among the cattle. The University has made little or no effort to find the exact cause and, if possible, find a remedy. The Doctor praised the effort now being made by the State to establish a scientific veterinary college at the National Stock Yards in Chicago. This paper should be read by every farmer and stock raiser, and we trust it will be published in the farm and stock journals. A very animated discussion was indulged in by most every member present. Several theories were advanced, but the majority were of the opinion that the trouble was caused by something in the stalk and blade. The rotten corn theory was well sustained by the essayist, by citing many instances where he had made close observation and examination of cases, and was fully convinced that the trouble was due to the rotten corn. Several of the members thought differently, and stated that they knew numbers of farmers who let their cattle have free access to the piles of rotten corn that they threw out from their wagons when shoveling out the loads. The cattle showed no signs of the trouble until they were turned into the stalks.

On motion, discussion closed.

The following motion passed the second reading and was adopted by a unanimous vote:

"Members whose names have been dropped from the roll of the association for the non-payment of dues can be reinstated on their application being acted upon by the Board of Censors and Association, and then paying the regular membership fee."

(Signed.) JOSEPH HUGHES,
J. T. NATRESS.

A motion was offered by Dr. A. H. Baker, seconded by Dr. H. B. Cale, that the Secretary receive twenty-five (25) dollars per session. Motion was carried by unanimous vote.

Communications were read and disposed of.

MEMBERS AND VISITORS PRESENT.

Dr. H. E. Titus, Lafayette, Ind.
Dr. J. F. Gillespie, Tuscola.
Dr. Geo. B. Jones, Sidell.
Dr. L. C. Tiffany, Springfield.
Dr. W. J. Martin, Kankakee.
Dr. W. H. Weathers, Magnolia.
Dr. E. A. Jenkins, Shelbyville.
Dr. G. W. Wolaver, Jr., Edinburg.
Dr. H. J. Man, Herscher.
Dr. Albert E. Worms, Chicago.
Dr. Alex. Eager, Chicago.
Dr. A. H. Baker, Chicago.
Dr. J. O. R. Campbell, Chicago.
Dr. John D. Lyle, Sparta.
Dr. D. L. Travis, Vandalia.
Dr. F. A. Laird, Auburn.
Dr. L. A. Merillat, Chicago.
Dr. J. H. Crawford, Harvard.
Dr. F. H. Barr, Pana.
Dr. C. C. Mills, Decatur.
Dr. R. E. Nesbett, Lincoln.
Dr. C. S. Haward, Mattoon.
Dr. M. M. Fletcher, Bethany.
Dr. B. F. Hudson, Mowequa.
Dr. Harry B. Cale, Macomb.
Dr. W. H. Welch, Lexington.
Dr. J. D. Nighbert, Pittsfield.
Dr. Albert Babb, Springfield.
Dr. J. T. Nattress, Delevan.
Dr. James Smellie, Eureka.
Dr. M. L. Hynes, Rantoul.
Dr. O. W. Winters, Arthur.
Dr. R. P. Frans, Stronghurst.
Dr. E. J. List, Havana.
Dr. N. I. Stringer, Paxton.

At the close of the meeting resolutions were adopted and presented to the management of the "St. Nicholas Hotel," for their courteous treatment and liberality in furnishing a parlor free of charge for the meeting. The following reply was received by the Secretary:

SPRINGFILED, ILL., July 11, 1907.

Dr. N. I. STRINGER, Secretary, I. S. V. M. A., *Paxton, Ill.:*

DEAR DOCTOR:—We have yours of the 10th instant, expressing the thanks of the association for the accommodations extended during your twenty-fifth semi-annual meeting. We assure you this expression is appreciated by us, and we wish to return our thanks to the association for its patronage, and to advise you that the association will always be welcome to the accommodations which we may have at our command.

With best wishes, we are,

Yours truly,

ST. NICHOLAS HOTEL,
JOHN H. MCCREERY, Prop.
Per H. G. Clark.

With such splendid hospitality, and the splendid meeting that we had, no doubt the association will again choose Springfield for a meeting place in the very near future.

Meeting adjourned, subject to the call of the President.

N. I. STRINGER,
Secretary.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The Veterinary Association of the District of Columbia held their first meeting of the fall in Oppenheimer's Hall, No. 514 Ninth street, N. W. It was very largely attended, those answering to roll call being Drs. H. W. Acheson, F. M. Ashbaugh, Harry Bosley, D. E. Buckingham, W. P. Collins, Ralph Dunn, A. M. Farrington, J. C. Heide, John Lockwood, J. R. Mohler, W. P. Pointon, C. B. Robinson, Joseph Selby, J. P. Turner, H. Young, C. C. Weeks, J. P. Keifer, H. F. Hungerford, R. C. Talty and M. Page Smith. Drs. R. B. Blume and William F. Davis, of the Bureau of Animal Industry, were elected members The work of the Board of Examiners in Veterinary Medicine for

the District of Columbia was discussed. (The inclosed clipping from the *Evening Star* of October 30, 1907, will show the activity of the board in connection with the prosecution of parties practicing veterinary medicine illegally.)

"AFTER HORSE DOCTORS—SOME PRACTICE WITHOUT REQUIRED LICENSE.

"The District Board of Veterinary Surgeons has begun the active prosecution of persons practicing veterinary medicine in this jurisdiction without a license, and in violation of the local laws and regulations on the subject.

"As a starter five cases were presented to the Police Court to-day. Alonzo Kavanaugh, itinerant veterinarian; Henry Joy, Harrison street, Anacostia; Henry C. Garges, 236 First street, southwest, and William Duvall, in charge of stables between D, East Sixth and Seventh streets, northwest, were all charged with being unlicensed veterinarians. Kavanaugh was fined $20, Joy $10 and Garges $30. Duvall's case was continued for a couple of days. In addition to these Dr. William R. Pointon, a licensed veterinarian, was charged with refusing to exhibit his license, as required by the regulations. His case was continued until to-morrow.

"Since February 1 last veterinarians have been under practically the same regulations as general doctors and surgeons. They must obtain a license, and that is only possible after an examination in all branches of the science. Since the regulations have been put into effect, it has been found, the board states, that many men who handle horses as hostlers or horseshoers, etc., have held themselves out as veterinarians. The board desires to have that practice stopped, so that horses and other animals will receive scientific treatment from licensed men.

"Kavanaugh, the testimony showed, practiced around the horse bazaars. He pleaded guilty, and in default of the $20 fine he was ordered to be committed to jail for fifteen days.

"Garges, it was testified, was visited by Dr. Buckingham, the head of the board, and treated a horse which the doctor presented. He pleaded guilty and paid $30.

"Joy admitted on the stand that he took 50 cents from Detective Vanzant in payment for advice and for a bottle of liniment.

"'How much did you pay for the liniment?' he was asked.

"'A quarter.'

"'What did you do with the other 25 cents?' he was asked.

"'I thought it was worth that for me to leave my business and get the liniment,' he replied.

"'You are guilty,' the judge remarked. Joy was assessed $10."

Several papers of interest were promised for the next meeting.

F. M. ASHBAUGH, D. V. S.,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The November meeting of the Veterinary Medical Association of New York City was held in the lecture-room of the New York-American Veterinary College, on Wednesday evening, November 6.

Owing to the absence of President Bell, who was unable to be present on account of illness, the Vice-President, Dr. Charles E. Clayton presided. There was a good attendance of members, as well as a number of visitors from out of the state, who were attracted by our program. The minutes of the previous meeting were read and approved, after which the Chairman introduced Dr. W. Byron Coakley, of New York City, who presented a very valuable and instructive paper on "Mastoiditis and Otitis Media, Suppurative and Non-suppurative, in the Dog and Cat." His paper was made up entirely from data which represented careful original research work on these diseases. Numerous alcoholic and fresh specimens were exhibited and demonstrated to the members by Dr. Coakley. The post-mortem records of these cases were most complete and convincing.

Dr. V. A. Moore, of the New York State Veterinary College, Ithaca, N. Y., addressed the meeting on the subject of the recent famous Smoke Suit Case in the Deer Lodge Valley of Montana. Dr. Moore discussed the case principally from its pathological viewpoint, which proved to be of great interest.

Dr. R. J. Schreiber presented a dog suffering from the paralytic form of rabies. This case was examined by all the members with great interest, and Dr. Coakley, who is considered an authority on rabies, demonstrated on this case what he considered a diagnostic eye symptom of rabies. In this case the left eye was covered with a peculiar scum, under which the pupil was seen to be in what the doctor described as "pin point con-

traction," and uninfluenced by light; the cornea and conjunctiva were hæmorrhagic and analgesic. Dr. Coakley explained that atropine and cocaine applied directly to the eye would fail to influence the contraction of the pupil, and even when these drugs were given hypodermically in doses sufficiently large to produce death, the result is the same. Many of the members availed themselves of the opportunity of asking the doctor questions concerning rabies, and the subject was further discussed by Drs. Pierce, Moore, Clayton, Ackerman, Atchison and others.

Owing to the lateness of the hour, the case reports on rabies by Drs. Ellis and Gill were postponed, to be taken up at the December meeting.

On motion, a hearty vote of thanks was extended to Drs. Coakley and Moore for their valuable contributions to the evening program. The meeting adjourned at 11.50 P. M.

W. REID BLAIR,
Secretary.

RHODE ISLAND VETERINARY MEDICAL ASSOCIATION.

A meeting of this association was held at the Hospital of Drs. Dunn and Sullivan, in Providence, October 18, 1907. The following members responded to their names: Drs. J. A. McLaughlin, J. S. Pollard, U. G. Richards, F. de M. Bertram, C. T. Frey, L. T. Dunn, J. T. Chorlton, T. E. Robinson.

Visitors—Drs. E. J. Sullivan and W. E. Randall.

After a short business session, Dr. J. A. McLaughlin presented a very interesting paper, the subject of which was rabies, nearly every member taking part in the discussion. The members then adjourned to the operating room, where several operations were performed, the principal of which being resection of the lateral cartilage of the ospedis, for the cure of quittor, by Drs. L. T. Dunn and T. E. Robinson; removal of the fourth upper molar, operator Dr. F. de M. Bertram.

Dr. Frey administered the anæsthetic in both cases, chloroform being used.

T. E. ROBINSON,
Secretary.

NEWS AND ITEMS.

DR. A. MITCHELL, of Skaneateles, New York, is at present at Madagascar.

DR. H. D. PAXON (U. P. '93) is teaching meat inspection at the McKillip Veterinary College, Chicago.

DR. F. E. HAWORTH, Veterinary Inspector, B. A. I., has been transferred from Chicago to Indianapolis.

DR. F. D. HOLFORD has accepted a position with the Borden Condensed Milk Company, and is stationed at Sidney, N. Y.

DR. BRADFORD A. HYAN, Veterinary Inspector, B. A. I., has been transferred to the Bureau force at Buffalo, N. Y., from Chicago.

DR. I. G. WINSETT, formerly of Crisman, Ill., has recently bought a half interest in the Beatrice Veterinary Infirmary, at Beatrice, Nebraska.

DR. HORACE LAUGHLIN, of Bellecenter, Ohio, has been appointed veterinary surgeon, at a salary of $2,100 a year, by the Panama Canal Commission, and has gone to the Isthmus.

DR. JAMES C. MCNEIL, of Pittsburg, Pa., a member of the State Board of Veterinary Medical Examiners, is a candidate for the Republican nomination for State Senator in Pennsylvania.

CHARLES W. BARRETT, D. V. S., N. Y. A. V. C., '06, fomerly of Paterson, N. J., has been appointed City Veterinarian of Pasadena, Cal., where he has been located since his graduation.

"DR." ASA THOMAS, South Amboy, N. J., has been indicted by the Grand Jury of Middlesex County, in that state, for entering upon veterinary practice on the strength of a diploma from a correspondence school, known as the Veterinary Science Association of London, Ontario.

DR. J. L. TYLER (C. V. C., '91), who for two years has been connected with Dr. W. A. Connoly's Infirmary, at Los Angeles, Cal., has moved to Whittier, Cal., where he has formed a partnership with Dr. O. J. Osborn, who has a large practice already established. These gentlemen are building an up-to-date infirmary, 40 x 100 feet, with a capacity of seventeen stalls. They are installing one of Kyle Bros. improved operating tables, and every other appliance will be added to bring the infirmary up to the highest standard.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
American V. M. Ass'n.....	Sept. 8,9,10 & 11.	Philadelphia..	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	Jan. 9, 1908.....	Trenton.....	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n.....	1st Tu. Feb.....	Hartford	B. K. Dow, Willimantic.
New York S. V. M. Soc'y.....	Sept., 1908.....	Utica.....	M. Hamilton, Delhi.
Schuylkill Valley V. M. A.....	Dec. 18, 1907....	Reading	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Monthly.....	Paterson, N.J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Maine Vet. Med. Ass'n	.....	.....	R. E. Freeman, Dexter.
Central Canada V. Ass'n.....	.....	Ottawa.....	A. E. James, Ottawa.
Michigan State V. M. Ass'n.....	Feb. 4-5, 1908 ...	Lansing.....	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C.....	April, 1908.....	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	Dec. 3-4, 1907...	Chicago.....	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.....	.....	Decatur.....	C. M. Walton, Rantoul
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n.....	July 2-3, 1908...	Raleigh	Adam Fisher, Charlotte.
Ontario Vet. Ass'n.....	.....	.....	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City.....	1st Wed., Dec...	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	Jan. 14-15, 1908..	Columbus.....	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n	.....	.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.....	January, 1908...	Rochester.....	J. H. Taylor, Henrietta, N.Y.
Iowa Veterinary Ass'n.....	Jan. 28,29,30, '08.	Cedar Rapids.	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n.....	2d Wk. Th. Jan.	St. Paul	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.....	March, 1908....	Philadelphia..	F.H. Schneider, Philadelphia.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n.....	.....	Denver	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n.....	Feb., 1908.....	Kansas City..	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence ...	T. E. Robinson, Westerly, R.I.
North Dakota V. M. Ass'n.....	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n.....	Mch. Je. Sep. Dec	San Francisco	C.M. Haring, U. C., Berkeley.
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles..	J. A. Edmons, Los Angeles.
South Dakota V. M. A.....	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	Hans Jenson, Weeping Water.
Kansas State V. M. Ass'n.....	Jan. 2-3, 1908...	Manhattan ...	Hugh S. Maxwell, Salina.
Ass'n Médécale Veterinare Française "Laval".....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	Nov. 19, 1907....	Not decided ..	D. A. Piatt, Lexington.
Washington State Col. V. M. A ..	Monthly.....	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association...	An'l, Jan., '08...	Indianapolis..	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	2d Thu. ea. mo .	St.P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n....	Xmas week.....	Auburn, Ala..	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	.....	.....	C. L. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.....	June, 1908.....	Philadelphia..	B.T. Woodward, Wash'n, D.C.
Virginia State V. M. Ass'n	.....	.....	S. C. Neff, Staunton.
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club....	Monthly.....	.....	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia.....	4th Wed. ea. mo.	514—9th St., N. W.....	F. M. Ashbaugh, Wash., D.C.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	J. Madsen, Chicago, Ill.
Arkansas Veterinary Society.....	.....	.....	B. H. Merchant, Little Rock.
York Co. (Pa.) V. M. S.....	Dec. 3, 1907.....	York, Pa.....	E. S. Bausticker, York.
Philippine V. M. A.....	.....	....	R. H. McMullen, Manila.
Montana State V. M. A.....	Oct., 1908	Helena.....	
Veterinary Ass'n of Alberta.....	.....	.....	C. H. H. Sweetapple, Fort Saskatchewan, Alta., Can.

PUBLISHERS' DEPARTMENT.

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Rejected manuscripts will not be returned unless postage is forwarded.

Subscribers are earnestly requested to notify the Business Manager immediately upon changing their address. **Make all checks or P. O. orders payable to American Veterinary Review.**

Slight Change in Subscription Price in Canada.

Owing to the requirements of the new law governing the transmission of second-class matter in the mails between the United States and Canada, it is now necessary to affix postage stamps on periodicals mailed to Canada at the rate of one cent for each four ounces or fraction thereof—instead of sending them as heretofore by pound weight at one cent a pound. We would like to convey clearly to our Canadian subscribers that *we* are not charging them any more for the Review, but are adding the twenty-five cents a year to meet the *extra* postage we are compelled to pay owing to the new postal law, which has been in effect for a few months, but we have deferred making any change before the new year.

Beautiful 1908 Calendar Free.

It is our good fortune to have the privilege of bringing to the attention of our readers a very handsome 1908 calendar. The subject is called "Little Miss Zenoleum's Sister." The original painting was prepared upon special order and is owned by the makers of Zenoleum.

The subject is an American girl in a rich red gown embellished with a magnificent set of ermine furs. This is the reddest red girl of the season and handsome enough to deserve a frame.

The subject is modest and chaste and worthy of a place in the front room of every one of our readers. We urge you to send for one of these calendars at once. We know you will be proud of the picture and the calendar will certainly prove of use for the next twelve months.

This calendar will be mailed absolutely free if you will address the Zenner Disinfectant Company, 124 Lafayette Avenue, Detroit, Michigan. As a limited number only are to be given away, we suggest haste in writing. First come, first served.

The old-time antiseptic powder of J. S. Tyre, Chemist, Washington, D. C., is *known* to most veterinarians. To those, however, who have not become acquainted with it, we suggest that they drop a line to the manufacturer, whose address will be found on page 27 (Advertising Department), for a sample, which he offers free to all veterinarians on request.

The Rech-Marbaker Co., of Philadelphia, whose advertisement appears on page 5 (Advertising Department), recently delivered to Dr. Ellis, of the Review, a beautiful Horse Ambulance, strictly up to date; which they had been building during the summer months, under the Doctor's personal supervision.

A Vest Pocket Veterinary Mouth Speculum, given to the veterinary profession by one of the oldest practitioners in the City of Brooklyn, is advertised and illustrated on page 16 (Advertising Department). It is a neat, nicely made little instrument, nickel-plated, and convenient to carry about.